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TO : E G Nelson Agron BPISAE **DATE:** 17 Jan 52 1953

FROM : Plant Ind Sta Beltsville Md

SUBJECT: E O Gangstad Agron BPISAE
Everglades Exp Sta, Belle Glade, Fla

Progress Report on Sansevieria

Attached compilation of Agronomic Research on sansevieria for period of 1942-51

Four indices have been prepared to collate the data, i.e., index of studies, subjects, location and title sheets.

E O Gangstad

RECEIVED
JAN 21 1953
U. S. DEPARTMENT OF AGRICULTURE
COTTON AND OTHER FIBER CROPS AND DISEASES

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Sansevieria 42 - 1 Boynton, Fla.

Object of Experiments:

Observations, studies and experiments on the method of propagation of sansevieria were undertaken to determine the best methods of propagation for the commercial production of fiber. S. guineensis was studied because this species has escaped to the wild and become naturalized in South Florida.

Abstract of Results:

Young whole plants were found to reproduce and establish a stand most rapidly. However, under commercial conditions it might be feasible to plant leaf cuttings directly to the field. Control of weeds would probably be the most limiting factor.

The cuttings are polar and must be planted with the basal portion in the ground. They root in six to eight weeks and produce rhizomes during the third month. Root hormones may be used for more rapid rooting but this treatment does not greatly increase the rate of development of new plants.

Rhizomes develop slow growing juvenile plants. There is a tendency for development of a single primary shoot from rhizomes while leaf cuttings develop several shoots per cutting.

Plants grown in the shade were found to develop more slowly than plants in the direct sunlight. Young plants with red rhizomes produced more new plants than those with old grey rhizomes.

2

Outline Sansevieria 42 - 1 Boynton

1. Expt.: Method of Propagation
2. Location: Winchester Farm
3. Soil: Leon Fine Sand
4. Variety: *S. guineensis*
5. Treatments:
    - a) Whole plants
        - (i) White vs. green plants
        - (ii) Grey vs. red rhizomes
        - (iii) Sun vs. shade
    - (b) Leaf cuttings
        - (i) Division base to tip
        - (ii) Longitudinal division
        - (iii) Hormone treatments
    - (c) Rhizomes
        - (i) Grey vs. red
        - (ii) Long vs. short sections
6. Design: Observation blocks of 20 foot rows and beds approximately 1/2 acre each

Data Sheet 1 Sansevieria 42 - 1

Boynton

Planted April 1943; observations Nov. 1946

Field beds 1/2 acre S. *guineensis*

Plants 12 - 18 inches

Rows 3 feet apart

		Plant Height	Plants per Sq. Ft.
A.	Whole plants	a) 33	20
		b) 37	27
		Av. 35	23
B.	Leaf cuttings	a) 18	14
		b) 28	10
		Av. 23	12
C.	Rhizomes	a) 25	10
		b) 24	10
		Av. 24.5	10

Remarks:

Whole plants found to give the most rapid development.

Data Sheet 2 Sansevieria 42 - 1 Boynton

Planted Oct. 1943; Observations Sept. 1944

Description of Planting Stock:

Green plants with red rhizomes. Plants fully exposed to light so that leaves were green. Fully developed red rhizomes.

White plants with red rhizomes. Plants from dense stands cut off from direct light, chlorophyll much reduced. Fully developed red rhizomes.

Green plants with grey rhizomes. Plants fully exposed to light with old greyish rhizomes.

White plants with grey rhizomes. Plants from dense stands not exposed to light with old greyish rhizomes.

Number of plants per 20 foot row, one year after planting

Culture	Sun		Shade		Total White vs. Green
Rhizomes	Grey	Red	Grey	Red	
Green Plants (1)	80	104	87	100	
(2)	83	148	74	94	
Total	163	252	161	194	770
White Plants (1)	64	107	48	98	
(2)	82	140	52	97	
Total	146	247	100	195	688
Grey vs. red	309	499	261	389	
Sun vs. shade		808		650	

The young plants with red rhizomes in the sun gave the best rate of growth.

Data Sheet 3 Sansevieria 42 - 1 Boynton
Planted Aug. 1943, Observations Sept. 1944
Division of the rhizome, S. guineensis
Fifteen foot rows, 12 inches apart

Number of Plants per Row

Rhizome length		3"	6"	12	Total Red vs. Grey
White	(1)	24	30	25	
	(2)	13	33	36	
Total		37	63	61	161
Red	(1)	56	48	48	
	(2)	47	51	57	
Total		103	99	95	297
Length Total		140	162	156	

Young red rhizomes gave most plants, not greatly affected by length. Tendency noted for development of primary shoot from each rhizome.

Longitudinal Division of the Leaf Cutting

Division	1/8	1/4	1/3	1/2
Plants per cutting	1.3	2.2	2.4	3.1

Number of plants per cutting tend to be considerably reduced by longitudinal division of the leaf cutting.

Data Sheet 4 Sansevieria 42 - 1
Observations one month after treatment

Boynton

The Effect of Rooting Hormones on the Growth of Roots of Sansevieria guineensis Cuttings

Treatment		Roots per Cutting			
		1	2	3	Av.
Indolebutyric acid 50 ppm	1 hr.	5	4	3	4.3
	4 hr.	2	20	9	10.3
Indolebutyric acid 100 ppm	1 hr.	5	0	5	3.3
	4 hr.	6	7	5	6.0
Indoleacetic acid 50 ppm	1 hr.	45	30	35	36.7
	4 hr.	10	15	35	20.0
Indoleacetic acid 100 ppm	1 hr.	22	25	23	23.3
	4 hr.	8	9	10	9.3
Lanolin paste of 50 mg. indolebutyric acid per gram of lanolin		1	3	1	1.7
Talc dust containing indolebutyric acid and napthalene acetamide 1 to 5000 parts talc		0	1	0	0.3
Check		0	0	2	0.6
Check		2	4	3	3.0

50 ppm indoleacetic acid 1 hour gave best rooting.

Project G-5-0 Sansevieria 43-1 Boynton, Fla.

Object of Expt.: Study the survival and growth of leaf cuttings of S. guineensis as related to the season.

Abstract of Results:

Mid-sections have highest general survival. April, May, June and July were critical months by desiccation of cuttings during dry periods and soft rot during wet periods. There is danger of cold injury during November, December, January and February.

Tip sections of the leaf planted in August gave the highest net increase of plants. Best growth was obtained during the fall season, July - November.

Outline:

1. Expt.: Survival and growth of monthly plantings
2. Location: Oscar R. Winchester Farm
3. Soil: Leon fine sand
4. Variety: S. guineensis
5. Treatment: 20 - 100 sections of base, middle and tip of leaf 12 inches long, planted 25th day of each month, in rows 6 feet apart and cuttings 2 inches apart in row
6. Design: Regular planting in field bed

Data Sheet 1 Sansevieria 43-1 Boynton

Survival of monthly plantings of leaf cuttings of S. *guineensis*

	BASE		MIDDLE		TIP		
	Number Planted	Per cent Survival	Number Planted	Per cent Survival	Number Planted	Per cent Survival	Av. %
July	60	58	50	80	50	40	59
Aug.	70	97	70	97	70	97	97
Sep.	100	57	100	75	100	75	69
Oct.	125	73	100	82	50	90	82
Nov.	150	36	75	76	40	40	51
Dec.	32	22	20	90	15	80	64
Jan.	50	90	30	90	20	90	90
Feb.	50	84	75	95	50	94	91
Mar.	75	89	50	96	35	86	90
Apr.	20	25	20	60	20	30	38
May	20	80	20	80	20	50	70
June	20	75	20	90	20	00	55

July 25, 1943 - June 25, 1944

Best survival during early fall, August - October, and early spring, February (Jan.25) through March. November - December and April, May, June were low months.

Data Sheet 2 Sansevieria 43-1 Boynton

Net increase of plants of monthly leaf cutting plantings, 12 months after planting.

	BASE		MIDDLE		TIP		
	Number Plants*	Net** Increase	Number Plants*	Net** Increase	Number Plants*	Net** Increase	Av. Ins.
July	22	0.38	35	0.70	71	1.42	0.83
Aug.	33	0.47	96	1.37	215	3.07	1.64
Sep.	24	0.24	86	0.86	152	1.52	0.87
Oct.	13	0.10	105	1.05	90	1.80	0.98
Nov.	5	0.03	57	0.76	38	0.95	0.58
Dec.	3	0.09	25	1.25	35	2.30	1.13
Jan.	3	0.06	39	1.30	38	1.90	1.09
Feb.	4	0.08	20	0.27	40	0.80	0.38
Mar.	4	0.05	15	0.30	20	0.57	0.31
Apr.	7	0.35	31	1.50	29	1.45	1.10
May	8	0.40	40	2.00	25	1.25	1.22
June	14	0.70	36	1.80	00	0.00	0.83
Av.		0.25		1.20		1.41	

*Number of plants per total number of cuttings planted
**Number of plants per cutting

Highest number of plants obtained from leaf tips planted in August.

Data Sheet 3 Sansevieria 43-1 Boynton

Monthly growth of S. guineensis for 1946, 25th day of month

	LOCATION						
	1	2	3	4	5	Total	Av. Diff.
Jan.	33	41	35	31	42	182	
Feb.	33.5	41	35	33	42	184.5	2.5
Mar.	34	41.5	35	33	42	185.5	1.0
Apr.	34	42	35.5	33.5	43.5	188.5	3.0
May	34.5	42	36	34	44	190.5	2.0
June	35	43	36	35	44	193.0	1.5
July	36	43	37	35.5	45.5	197.0	4.0
Aug.	37	46	37	36	46	202.0	5.0
Sep.	37.5	47	38	37	48	207.5	5.5
Oct.	38.5	47.5	38.5	38.5	48	211.0	3.5
Nov.	38.5	48	39	38.5	49.5	213.5	2.5
Dec.	39	48	41.5	39	51.5	219.0	5.5

Best growth obtained during the fall season, July through October.

Project G-5-0 Sansevieria 44 - 1 Boynton

Object of Experiment:

Observation and study of cultural conditions relating to good growth of sansevieria.

Abstract of Results:

Density of stand is found to be one of the largest contributing factors of total yield. Extremely dense stands are only found in old plots. Shade is observed to be limiting to the development of a dense stand. High soil fertility and a good moisture supply are important factors of yield.

The annual increment of fiber yield did not increase with *S. guineensis* after the second year. Observed frost injury indicates that the growth of *S. guineensis* is limited by the cold. *S. trifasciata*, which has greater cold tolerance, continues growth in height and density of stand. High yields from *S. guineensis* in wild growth are attributed to frost protection, age and moisture. See page 55

Outline:

1. Expt.: Effect of cultural conditions on the growth and yield of sansevieria
2. Location: Boynton area
3. Soil: Leon fine sand
4. Variety: *S. guineensis* and *S. trifasciata*
5. Treatment:
    - a) Cuttings of wild plants
    - b) Cultivated locations, mulched, shade, fertilizer treatment
6. Design: Field planting approximately 1/2 acre beds; wild plots 25 - 100 square feet

Data Sheet 1 Sansevieria 44 - 1 Boynton

Field observations of wild growth of Sansevieria guineensis in Leon fine sandy soils near Boynton, Florida

	Culture					
Location	Soil Water Supply	Shade or Sun	pH	ppm Soluble Salts*	Ca**	Mg**
Hypoluxo	Good	Partial	5.6	223	High	High
Boynton 1	Good	Shade	6.4	388	Very High	Med.
Boynton 2	Good	Sun	7.2	435	Very High	High
Boynton 3	Fair	Sun	5.5	100	High	Med.
Lantana	Poor	Sun	5.5	237	Very Low	Low

*One day contact with water

**Tests by Morgan's rapid method, soil analysis by Division of Soils and Fertilizers, 18 August 1943, Beltsville, Maryland

Data Sheet 2 Sansevieria 44 - 1

Boynton

Yield of wild and cultivated S. guineensis

Average Plant Height	Leaves per Sq. Ft. +20"	Total Green Wt. Tons per Acre		Dry Fiber	Annual Yield
		-20"	+20"	#/a+20"	#/a+20"
Hypoluxo, 15 year wild growth					
56	47	—	500.14	20,056	1337
Boynton 1, 5 year wild growth					
52	13	—	238.68	6,206	1241
Boynton 2, 5 year wild growth					
43	11	—	145.92	5,545	1109
Boynton 3, 5 year wild growth					
41	10	—	105.62	4,330	866
Lantana, 5 year wild growth					
22	6	—	37.20	922	184
Mulch and fertilizer, 2 year cultivated growth					
27	19	66.77	111.53	3,234	1617
Shade and fertilizer, 2 year cultivated growth					
28	26	53.20	103.90	2,763	1381
Fertilizer, 2 year cultivated growth					
32	17	—	67.33	2,101	1050
Unfertilized check					
11	15	45.04	20.89	621	310

-20", leaves under 20 inches in length
+20", leaves over 20 inches in length

Project G-5-0

Sansevieria 45 - 1 Bradenton
45 - 2 Fort Myers
45 - 3 Boynton

Object of Experiments:

Study of fertilizer applications on sansevieria on similar soil types at different locations.

Abstract of Results:

Yield data of different locations are similar in respect to treatments but differ in levels of response. Yields at Bradenton were low, at Boynton intermediate and high at Ft. Myers. Seminole cowpeas, Uramon and 3000#/a of 4-7-5 gave significantly higher yields than other treatments. It is assumed that high available soil moisture at Ft. Myers was responsible for the high yield at that location. The high yield of 3000#/a 4-7-5 appears to be related to Nitrogen because cowpeas and Uramon gave a similar response.

Outline:

1. Expt: Rate of Fertilization
2. Location: Bradenton, Fort Myers, Boynton
3. Soil: Leon fine sand
4. Variety: S. guineensis
5. Treatment: (a) Control, (b) 1000#, (c) 2000#, (d) 3000#/a 4-7-5, (e) 120# N/a as Uramon, (f) Seminole cowpeas
6. Design: Random block, 3 replicates, whole plants 12 inches apart, 15 foot row, rows 4 feet apart.

Data Sheet 1 Sansevieria 45 - 1 Bradenton (Manatee)
Planted Dec. 1945, frozen Feb. 1947, Harvested Nov. 1949
Approximately 20 months, 2 seasons' growth

Treatment	Rep.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Gn. Wt. -20"	Cal. Acre Yield Tons Gn. Wt. +20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Check	I	24	—	7.26	10.16	205	
	II	23	—	5.81	6.53	179	
	III	25	—	7.26	11.62	377	
Average		24	—	6.77	9.44	254	127
1000#/a	I	33	—	4.36	13.07	473	
4-7-5	II	27	—	15.97	11.62	371	
Fertilizer	III	28	—	12.34	11.62	371	
Average		29	—	10.55	12.34	405	203
2000#/a	I	34	—	5.81	18.88	652	
4-7-5	II	31	—	13.07	11.62	371	
Fertilizer	III	33	—	10.16	18.88	576	
Average		33	—	9.68	16.46	533	266
3000#/a	I	31	—	11.62	14.52	569	
4-7-5	II	29	—	13.07	15.97	576	
Fertilizer	III	31	—	10.16	21.78	755	
Average		30	—	11.62	17.42	633	316
Seminole	I	34	—	17.42	36.30	1126	
Cowpeas	II	31	—	23.23	33.40	1247	
(Cover crop)	III	33	—	8.71	58.80	1740	
Average		33	—	16.45	42.83	1371	686
Uramon	I	42	—	5.81	60.98	1663	
120#/a	II	31	—	10.16	39.85	1011	
N	III	31	—	7.26	40.66	1228	
Average		35	—	7.74	45.49	1301	650

Data Sheet 1 Sansevieria 45 - 2 Fort Myers
(Outline similar to 45 - 1)
Planted April 1945, frozen Feb. 1947, harvested Nov. 1949
Approximately 20 months (2 seasons' growth)

Treatment	Rep.	Av. Ht.	Leaves Sq. Ft.	Cal. Acre Yield Tons gn. wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Check	I	21		—	15.97	588	
	II	30		—	60.98	2328	
	III	26		--	40.65	1522	
Average		26		—	39.20	1479	739
1000#/a	I	26		—	24.68	844	
4-7-5	II	34		—	69.69	1983	
Fertilizer	III	32		—	91.48	3223	
Average		31		—	61.95	2017	1008
2000#/a	I	30		—	27.59	921	
4-7-5	II	31		—	75.50	2520	
Fertilizer	III	30		--	72.60	2482	
Average		30		—	58.56	1974	957
3000#/a	I	32		—	65.34	2034	
4-7-5	II	35		—	132.13	4548	
Fertilizer	III	39		—	119.06	5219	
Average		35		—	105.51	3933	1142
Seminole	I	38		—	110.35	8027	
Cowpeas	II	42		—	143.75	5104	
	III	38		—	119.06	4305	
Average		39		—	124.38	5812	2906
Uramon	I	37		—	336.86	10592	
120#/a	II	41		—	155.36	5443	
N	III	38		—	287.50	4656	
Average		39		—	259.90	6870	3435

Summary Sheet 1 Sansevieria 45 - 1 and 45 - 2

Treatment and Location	Average Plant Height	Leaves per Sq. Ft.	Cal. Acre Yield Tons Gn. Wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Check						
Manatee	24		6.77	9.43	254	127
Ft. Myers	26			39.20	1479	739
Mean				24.32	816	
1000# 4-7-5						
Manatee	29		10.55	12.34	405	203
Ft. Myers	31			61.95	2017	1008
Mean				37.14	1211	
2000# 4-7-5						
Manatee	33		9.68	16.46	533	266
Ft. Myers	31			58.56	1934	957
Mean				37.51	1183	
3000# 4-7-5						
Manatee	30		11.61	17.09	633	316
Ft. Myers	35			105.51	3935	1968
Mean				61.30	2284	
Cowpeas						
Manatee	33		16.45	42.83	1371	686
Ft. Myers	39			124.36	5812	2906
Mean				83.59	3591	
Uramon 120#N						
Manatee	35		7.74	45.49	1301	650
Ft. Myers	39			259.91	6870	3435
Mean				152.70	4085	

Analysis of Variance of #/a+20" Dry Fiber

Source	DF	SS	MS	F
Total	35	198,007,028.97		
Replication	2	171,869.39	85,934.69	
Treatments	5	55,195,203.47	11,039,040.69	5.71**
Locations	1	75,583,800.02	75,583,800.02	39.15**
T x L	5	24,582,396.80	4,916,479.36	2.55
Error	22	42,473,759.30	1,930,625.40	

MSD treatment means (05) 2352.9; (01) 3198.1

**Highly significant

Data Sheet 1 Sansevieria 45 - 3 Boynton
(Outline similar to 45 - 1)
Planted Aug. 1945, frozen Feb. 1947, harvested Nov. 1949
(Some frost injury in 1948)

Treatment	Rep.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons gn. wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Check	I	—	30	26.57	—	—	
	II	—		33.40	—	—	
	III	20		19.40	6.34	162	
Average				26.46	2.11	54	27
500#/a	I	26	45	48.79	20.04	625	
4-7-5	II	23		44.43	16.55	517	
Fert.	III	25		41.38	40.51	1256	
Average		25		44.87	25.70	799	400
1000#/a	I	27	57	55.84	56.63	1812	
4-7-5	II	27		45.38	22.87	732	
Fert.	III	26		37.96	25.20	806	
Average		27		46.39	34.90	1117	559
1500#/a	I	32	45	44.57	63.67	2063	
4-7-5	II	31		56.63	52.64	1705	
Fert.	III	32		42.26	63.17	2047	
Average		32		47.82	59.83	1938	969
2000#/a	I	30	35	32.67	45.38	1379	
4-7-5	II	31		53.72	48.28	1468	
Fert.	III	31		50.97	47.05	1430	
Average		31		45.79	46.90	1426	713

Data Sheet 2 Sansevieria 45 -- 3 Boynton
Planted April 1945, frozen Feb. 1947, 1/2 plot harvested 1949, 1/2 plot harvested 1950
Nov. 1950 harvest 32 months, 3 seasons' growth

Treatment	Plot	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons gn. wt. -20"	Cal. Acre Yield Tons gn. wt. +20"	Dry Fiber #/a+20"	Annual Fiber Yield
Check	3	8	21	14.52	--	--	
	10	10	16	24.68	--	--	
	12	10	11	13.07	--	--	
Average		9	16	17.42	--	--	--
500#	5	25	48	49.37	40.66	1236	
4-7-5	6	21	21	23.23	5.80	204	
Fert.	15	25	40	42.11	53.72	1719	
Average		24	36	38.23	33.39	1053	351
1000#	4	25	49	47.92	53.72	1880	
4-7-5	7	25	36	59.53	27.59	861	
Fert.	11	25	37	40.66	31.94	1118	
Average		25	41	49.37	37.75	1286	429
1500#	1	30	38	45.01	79.86	2843	
4-7-5	8	32	47	69.70	82.76	2797	
Fert.	14	32	49	43.56	79.88	2587	
Average		31	45	52.75	80.83	2742	914
2000#	2	25	31	52.27	62.44	2185	
4-7-5	9	28	30	47.92	87.12	2770	
Fert.	13	25	37	47.92	69.70	2481	
Average		26	33	49.37	73.08	2478	823
LSD (05)		2.97	14.8	20.27	32.52		
LSD (01)		4.33	15.7	29.49	49.27		
		**	*	*	*		

*Significant
**Highly significant

Data Sheet 3 Sansevieria 45 - 3 Boynton
Summary of 45 - 3; 4-7-5 fertilizer treatments, #/a fiber

Treatments	500#/a	1000#/a	1500#/a	2000#/a
1949 Harvest	799	1117	1938	1426
1950 Harvest	1053	1286	2742	2478
Mean	926	1201	2340	1952

Analysis of Variance 45 - 3 ('49 & '50 harvest, #/a fiber)

Source	DF	SS	MS	F
Total	23	13,582,072.00		
Replicates	2	619,291.6	304,645.8	
Treatments	3	7,709,229.5	2,569,743.2	14.5**
Years	1	1,949,991.1	1,949,991.1	11.0**
T x Y	3	822,538.7	274,179.6	1.6
Error	14	2,481,021.1	177,215.8	

MSD of treatment means is: (05) 737.4; (01) 1023.4

**Highly significant

G-5-0 Sansevieria 46 - 1 - 5

Boynton

Object of Experiments: Application of:

46 - 1 Minor elements - Zn, Cu, B, Mn
46 - 2 Lime
46 - 3 Phosphate
46 - 4 Nitrogen and potassium
46 - 5 Nitrogen, formulas

Abstract of Results:

Treatments of moderate levels of the minor elements and phosphate did not show significant differences in yield. Responses to calcium were significant but somewhat erratic. Treatment of 1000#/a slaked lime gave highest yield. The treatments of nitrogen and potassium were significant, the greatest response being obtained from nitrogen. The highest yield was obtained from a treatment of 1000#/a of 12-8-8 fertilizer mixture. Uramon was found to be the most satisfactory source of nitrogen. The most soluble forms, such as nitrate of soda gave a very poor response.

Outline Sansevieria 46 - 1 Boynton

1. Expt.: Trace elements
2. Location: Winchester Farm, Boynton
3. Soil: Leon fine sand
4. Variety: S. guineensis
5. Treatments:

    (a) Control
    (b) Cu
    (c) Mn
    (d) Zn
    (e) B
    (f) CuZn
    (g) CuB
    (h) MnZn
    (i) ZnB
    (j) MnCu
    (k) MnB
    (l) CuZnB
    (m) MnCuB
    (n) MnZnB
    (o) MnCuZn
    (p) MnCuZnB

    Cu = 20# Copper sulfate per acre
    Mn = 20# Manganese sulfate per acre
    Zn = 20# Zinc sulfate per acre
    B = 5# Borax per acre
    1000# 4-7-5 per acre (general)

6. Design: Random block, 3 replicates, 3 x 15 foot plot
7. Summary: Nitrogen 40#/a as nitrate of soda is limiting to yield on these soils. Experiment should be repeated at a higher level of nitrogen

23

Data Sheet 1 Sansevieria 46 - 1

Boynton

Dec. 1949 harvest, 2 seasons' growth

Treatment	Plot No.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Gn. Wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Control	12	32	50	56.06	51.42	1604	
	21	21		50.40	13.07	408	
	39	30		52.28	49.01	1529	
		28		52.91	37.83	1180	590
Cu	14	30	62	78.95	58.26	1806	
	27	25		46.24	21.11	654	
	40	28		47.57	41.82	1296	
		28		57.59	40.40	1252	626
Mn	16	20	46	44.43	5.23	153	
	29	26		46.68	22.87	668	
	38	31		29.40	82.49	2409	
		26		40.17	36.86	1077	538
Zn	10	34	47	54.72	70.65	2218	
	32	32		32.41	51.75	1625	
	47	30		54.11	64.41	2022	
		32		47.08	62.27	1955	977
B	15	24	32	40.61	9.80	306	
	18	30		49.66	77.11	2406	
	44	28		55.68	48.29	1507	
		27		48.65	45.07	1406	703
CuZn	7	31	37	38.81	66.92	2048	
	28	26		55.79	51.27	1569	
	34	26		53.72	56.63	1733	
		28		49.44	58.27	1783	891
MnZn	2	24	42	60.26	15.25	497	
	17	27		54.54	52.84	1722	
	41	31		62.92	74.05	2414	
		27		59.24	47.38	1544	772
ZnB	6	32	51	59.90	58.44	1894	
	30	30		48.54	54.61	1769	
	42	26		50.71	23.52	762	
		29		53.05	45.52	1475	737

Data Sheet 2 Sansevieria 46 - 1 Boynton

Dec. 1949 harvest, 2 seasons' growth

Treatment	Plot No.	Ave. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Gn. Wt. -20"	Cal. Acre Yield Tons Gn. Wt. +20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
CuB	1	25	44	71.88	17.59	514	
	20	26		53.46	29.70	867	
	42	25		43.12	13.07	382	
		25		56.15	20.12	588	294
MnCu	8	31	51	54.14	81.68	2614	
	25	32		61.82	73.38	2348	
	35	26		52.27	46.70	1497	
		30		56.08	67.28	2153	1071
MnB	9	37	54	76.42	83.50	2672	
	26	22		27.92	17.82	570	
	36	26		46.73	24.16	773	
		28		50.36	41.83	1338	669
CuZnB	4	24	51	60.59	14.85	454	
	19	26		51.23	50.71	1552	
	48	28		69.00	28.75	880	
		26		60.27	31.44	962	481
MnCuB	13	25	54	57.30	23.62	737	
	22	27		58.30	53.28	1662	
	33	27		54.02	66.22	2066	
		26		56.54	47.71	1488	744
MnZnB	3	33	55	49.48	102.69	3512	
	24	29		64.89	68.95	2358	
	45	33		66.85	62.33	2131	
		32		60.41	77.99	2667	1333
MnCuZn	5	28	47	49.37	41.14	1358	
	23	26		57.80	32.67	1078	
	46	26		55.68	27.84	919	
		27		54.28	33.88	1118	559
MnCuZnB	11	30	56	80.86	43.70	1346	
	31	25		51.27	20.11	619	
	37	20		38.27	5.60	172	
		25		56.80	23.14	712	356

Data Sheet 3 Sansevieria 46 - 1 Boynton

Dec. 1950 harvest, 3 seasons' growth

Treatment	Plot No.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Gn. Wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Control	12	32	27	31.94	62.44	2260	
	21	25	31	26.14	11.61	420	
	39	28	41	40.66	50.82	1911	
		28	33	32.91	41.62	1530	510
Cu	14	27	32	45.01	26.14	931	
	27	35	48	37.75	84.22	2880	
	40	28	35	42.11	43.56	1620	
		30	38	41.62	51.31	1810	603
Mn	16	26	28	50.82	18.88	672	
	29	27	42	29.04	55.18	1843	
	38	26	33	46.46	58.08	2172	
		26	34	42.11	44.05	1562	521
Zn	10	30	28	50.82	78.40	2916	
	32	29	27	33.40	24.68	886	
	47	29	32	42.11	94.38	3549	
		29	29	42.11	65.82	2450	817
B	15	22	26	34.84	2.90	107	
	18	28	34	56.63	39.20	1403	
	44	28	33	49.37	59.53	2286	
		26	31	46.95	33.88	1265	422
CuZn	7	32	50	50.82	139.39	4934	
	28	29	58	36.30	60.98	2207	
	34	33	40	50.82	101.64	3801	
		31	49	45.98	100.67	3647	1216
MnZn	2	27	38	33.40	33.40	1182	
	17	30	44	50.82	42.11	1414	
	41	34	34	50.82	59.53	2238	
		30	39	45.01	45.01	1611	537
ZnB	6	30	49	55.18	107.45	3704	
	30	31	90	50.82	87.12	3311	
	42	30	28	27.59	42.11	1482	
		30	56	44.53	78.89	2832	944

Data Sheet 4 Sansevieria 46 - 1 **Boynton**

Dec. 1950 harvest, 3 seasons' growth

Treatment	Plot No.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Gn. Wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
CuB	1	26	31	31.94	23.23	836	
	20	28	44	53.72	37.75	1427	
	43	30	27	37.75	42.11	1592	
		28	34	41.13	34.36	1285	428
MnCu	8	31	40	36.30	74.05	2695	
	25	34	51	43.56	110.35	4215	
	35	28	40	50.82	65.34	2444	
		31	44	43.56	83.58	3118	1039
MnB	9	30	41	58.08	94.38	3190	
	26	25	19	20.33	23.23	479	
	36	26	32	42.11	36.30	1278	
		27	31	40.17	51.30	1649	550
CuZnB	4	26	46	31.94	36.30	1482	
	19	25	42	65.34	34.85	1227	
	48	26	26	29.04	24.68	923	
		26	38	42.10	31.94	1211	404
MnCuB	13	30	44	43.56	46.46	1561	
	22	33	49	60.98	60.98	2329	
	33	25	33	50.82	50.82	1769	
		29	42	51.78	52.75	1886	629
MnZnB	3	26	37	53.72	33.40	1182	
	24	28	31	39.20	58.08	2161	
	45	28	34	42.11	46.46	1831	
		27	34	45.01	45.98	1725	575
MnCuZn	5	27	34	43.56	75.50	2794	
	23	30	52	62.44	98.74	3693	
	46	30	28	40.20	47.92	1783	
		29	38	48.73	74.05	2757	919
MnCuZnB	11	30	41	52.27	40.65	1504	
	31	33	30	40.66	75.50	2778	
	37	26	27	37.75	27.59	1087	
		30	33	43.56	47.91	1790	597

Summary Sheet 1 Sansevieria 46 - 1 **Boynton**

Treatment Totals of #/a=20" lbs. dry fiber

	Zn	Cu	B	Mn	Average
Check					8,132
Zn	13,216				13,216
Cu	16,292	9,187			12,739
B	13,216	5,618	8,015		8,949
Mn	9,467	15,813	8,962	7,917	10,539
Average	13,048	10,206	8,488	7,917	
MnB	13,175	10,124			11,649
CuB	6,518				6,518
Average	9,846	10,124			
MnCu	11,625				
MnBCu	7,506				

Variation	DF	SS	MS	F
Total	95	90,381,344		
Whole Plots	47	58,938,817		
Replicate	2	35,448	17,724	
Fertilizers	15	25,845,913	1,723,061	1.56
R x F (a)	30	33,057,056	1,101,902	
Split Plots	48	31,442,927		
Years	1	8,366,120	8,336,120	21.59**
Y x F	15	10,749,446	716,630	1.86
Error b	32	12,357,361	386,168	

**Highly significant

Remarks: General trends of Zn, Cu, B and Mn with possible depressing effects of CuB and ZnB combinations, although not significant, may become significant at a higher level of N.

Outline Sansevieria 46 - 2 Boynton

1. Expt.: Rate of liming

2. Location: Winchester Farm, Boynton

3. Soil: Leon fine sand

4. Variety: S. guineensis

5. Treatment: 1000#/a 4-7-5

   a) Check

   b) 500# slaked lime per acre

   c) 1000# slaked lime per acre

   d) 1500# slaked lime per acre

   e) 2000# slaked lime per acre

6. Design: Random blocks, 3 replicates, 3 x 15 foot plot, 3 foot alley

Data Sheet 1 Sansevieria 46 - 2 Boynton

Planted 1945; frosted 1947; harvested 1/2 plot 1949 (2 seasons' growth)

		Av.	Leaves per	Cal. Acre Yield Tons Green Wt.		Dry Fiber	Annual Yield
Treatment	Rep.	Ht.	Sq. Ft.	-20"	+20"	#/a+20"	#/a+20"
Check	3	26	43	23.96	44.43	819	
	8	23		19.60	35.53	670	
	12	28		50.23	50.23	1718	
Av.		26		31.26	43.40	1069	534
500#/a slaked lime	1	23	43	7.62	41.38	232	
	7	24		10.53	37.03	320	
	11	25		22.87	45.38	695	
Av.		24		13.67	41.26	416	208
1000#/a slaked lime	5	25	51	35.01	49.48	1232	
	10	23		48.08	55.08	1692	
	13	27		37.57	45.74	1322	
Av.		25		40.22	50.10	1415	707
1500#/a slaked lime	2	23	38	6.94	42.88	222	
	9	26		39.64	61.42	1268	
	15	24		27.29	28.44	873	
Av.		24		24.62	44.25	788	394
2000#/a slaked lime	4	31	73	71.88	77.48	2444	
	6	27		39.57	44.65	1345	
	14	25		29.81	59.62	1014	
Av.		28		47.09	60.58	1601	800

Data Sheet 2 Sansevieria 46 - 2 Boynton

Planted 1945; frosted 1947; 1/2 plot harvested 1950 (3 seasons' growth)

Treatment	Rep.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Green Wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Check	3	27	46	47.92	36.30	1626	
	8	29	38	50.82	42.11	1642	
	12	28	47	53.72	27.59	1197	
Av.		28	44	50.82	35.33	1488	496
500#/a slaked lime	1	26	49	58.08	33.41	1436	
	7	26	36	60.98	33.40	1409	
	11	25	43	59.52	29.04	999	
Av.		26	43	59.29	31.94	1281	427
1000#/a slaked lime	5	23	37	52.27	21.78	936	
	10	29	40	69.70	40.66	1423	
	13	29	46	84.22	52.72	1940	
Av.		27	41	68.93	38.39	1433	478
1500#/a slaked lime	2	27	43	60.98	36.30	1626	
	9	28	41	71.15	29.04	1202	
	15	30	42	71.15	47.92	1744	
Av.		28	42	67.76	37.75	1524	508
2000#/a slaked lime	4	29	51	55.18	50.82	1962	
	6	30	33	53.72	43.56	1786	
	14	34	40	95.83	86.57	3366	
Av.		31	41	68.24	60.33	2371	790

Summary Sheet 1 Sansevieria 46 - 2 Boynton

Plot acre yields of #/a fiber 1949-50

Treatment	Year	I	II	III	Total
Check	49	819	670	1718	3207
	50	1626	1642	1197	4465
		2445	2312	2915	7672
500#/a	49	232	320	695	1247
	50	1436	1409	999	3844
		1668	1729	1694	5091
1000#/a	49	1232	1692	1322	4246
	50	936	1423	1940	4299
		2168	3115	3262	8545
1500#/a	49	222	1268	870	2363
	50	1626	1202	1744	4572
		1848	2470	2617	6935
2000#/a	49	2444	1345	1014	4803
	50	1962	1786	3366	7114
		4406	3131	4380	11917

Analysis of Variance

Variation	DF	SS	MS	F
Total	29	12,289,811		
Whole Plot	14	5,374,686		
Replicates	2	331,617	165,808	
Treatments	4	4,223,148	1,055,787	10.3**
R x T (Error a)	8	819,921	102,490	
Split Plots	15	6,915,125		
Years	1	2,367,706	2,367,706	6.19*
Y x T	4	723,991	180,997	.47
Error b	10	3,823,428	382,343	

Outline Sansevieria 46 - 3 Boynton

1. Expt.: Rate of phosphate fertilizer
2. Location: Winchester Farm, Boynton
3. Soil: Leon fine sand
4. Variety: S. guineensis
5. Treatment: general application of minor elements, 80#/a N, 80#/a K
    - a) No phosphate
    - b) 40#/a P205 (super phosphate)
    - c) 60#/a " " "
    - d) 80#/a " " "
    - e) 100#/a " " "
6. Design: Random block, 3 replicates, 3 x 15 foot plot

Data Sheet 1 Sansevieria 45 - 3 **Boynton**

Planted 1945, frozen 1947, harvested 1/2 plot 1949 (2 seasons' growth)

Treatment	Plot	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Green Wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Control	1	22	45	10.35	45.74	319	
	9	26		49.66	29.62	1529	
	12	25		21.27	38.38	655	
		24		27.09	37.91	834	417
40#/a P_2O_5	3	21	32	16.69	29.70	519	
	6	25		22.47	38.15	701	
	15	26		20.02	25.86	625	
		24		19.71	31.24	615	307
60#/a P_2O_5	2	26	46	28.51	49.30	873	
	8	20		7.00	29.41	214	
	13	24		21.00	41.07	643	
		23		18.84	39.93	577	288
80#/a P_2O_5	4	24	29	20.81	38.24	637	
	10	22		7.94	42.01	243	
	14	25		31.27	37.81	957	
		23		20.01	39.35	612	306
100#/a P_2O_5	5	27	69	36.83	63.56	1164	
	7	24		28.07	30.01	887	
	11	24		16.34	28.01	516	
		25		27.08	40.53	856	428

Data Sheet 2 Sansevieria 46 - 3 Boynton

Planted 1945, frozen 1947, harvest 1/2 plot 1950, 3 seasons' growth

				Cal. Acre Yield			
Treatment	Plot	Av. Ht.	Leaves per Sq. Ft.	Tons -20"	Green Wt. +20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
Control	1	28	24	42.11	23.23	604	
	9	29	39	65.34	43.56	1681	
	12	27	32	59.53	29.04	1220	
		28	32	55.66	31.94	1168	389
40#/a P_2O_5	3	25	33	37.75	17.42	728	
	6	30	45	66.79	31.94	1405	
	15	26	28	21.78	17.42	721	
		27	35	42.10	22.26	951	317
60#/a P_2O_5	2	28	41	47.92	20.33	854	
	8	30	44	71.15	23.23	539	
	13	28	23	33.40	15.97	632	
		29	36	50.82	19.84	675	225
80#/a P_2O_5	4	25	34	37.75	13.07	593	
	10	25	41	71.14	17.42	739	
	14	28	26	31.94	18.88	770	
		26	34	46.94	16.46	701	234
100#/a P_2O_5	5	25	36	42.11	14.52	647	
	7	28	26	39.20	15.97	712	
	11	23	27	36.30	15.97	629	
		25	30	39.20	15.49	663	221

Boynton

Summary Sheet 1 Sansevieria 46 - 3

Treatment totals, dry fiber #/a+20"

Treatment	Year	I	II	III	Total
Control	49	319	1529	655	2503
	50	604	1681	1220	3505
		923	3210	1875	6008
40#/a P_2O_5	49	519	701	625	1845
	50	728	1405	721	2854
		1247	2106	1346	4699
60#/a P_2O_5	49	873	214	643	1730
	50	854	539	632	2025
		1727	753	1275	3755
80#/a P_2O_5	49	637	243	957	1837
	50	593	739	770	2102
		1230	982	1727	3939
100#/a P_2O_5	49	1164	887	516	2567
	50	647	712	629	1988
		1811	1599	1145	4555

Analysis of Variance

Variation	DF	SS	MS	F
Total	29	3,397,997		
Whole Plot	14	2,562,108		
Replicates	2	158,646	79,323	
Treatment	4	524,142	131,036	0.56
R x T (a)	8	1,879,320	234,915	
Split Plot	15	835,889		
Years	1	132,269	132,269	3.17
Y x T	4	286,825	71,706	1.72
Error b	10	416,795	41,679	N.S.

Outline Sansevieria 46 - 4 Boynton

1. Experiment: N-K fertilizer ratio
2. Location: Winchester Farm, near Boynton
3. Soil: Leon fine sand
4. Variety: S. guineensis
5. Treatments

Treatments	#/aN	#/a K_2O	
(a)	0	0	Control
(b)	40	40	
(c)	40	80	
(d)	40	120	
(e)	80	40	
(f)	80	80	
(g)	80	120	
(h)	120	40	
(i)	120	80	
(j)	120	120	

All plots 80#/a P_2O_5 and trace elements:

Copper sulfate 25#/a

Manganese sulfate 25#/a

Zinc sulfate 10#/a

Borax 5#/a

6. Design: Random block, 3 replicates, plot 3 x 15 feet

Data Sheet 1 Sansevieria 46 - 4 Boynton

Planted 1945; treatment 1946; frozen 1947; harvest 1/2 plot 1949

Treatment	Plot No.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Green Wt. -20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
40#/a Nitrogen							
	6	28		55.32	34.41	1108	
40#/a K	17	31	55	54.02	86.25	2777	
	26	32		55.32	89.30	2876	
		30		54.89	69.99	2254	1125
	10	26		55.76	25.27	879	
80#/a K	18	28	35	59.01	35.41	1232	
	25	35		45.94	125.61	4373	
		30		53.57	62.10	2162	1081
	5	36		55.76	115.88	3940	
120#/a K	16	33	54	47.05	115.88	3940	
	21	27		51.34	33.14	1127	
		32		51.38	88.30	3002	1501
80#/a Nitrogen							
	2	35		59.25	78.85	2712	
40#/a K	14	40	67	44.29	178.96	6156	
	22	31		28.94	102.22	3516	
		35		44.16	120.01	4128	2064
	8	32		60.44	75.96	2370	
80#/a K	11	34	46	47.05	69.26	2161	
	27	31		59.21	56.76	1771	
		32		55.57	67.33	2101	1050
	1	35		45.38	75.59	2543	
120#/a K	19	36	48	51.89	77.26	2565	
	30	30		46.15	37.16	1234	
		34		47.81	63.67	2114	1057
120#/a Nitrogen							
	4	35		47.48	85.33	2679	
40#/a K	20	30	42	46.21	27.07	850	
	24	40		46.56	32.72	4168	
		35		46.75	81.71	2566	1783
	7	36		43.96	89.10	2905	
80#/a K	13	46	59	38.15	215.84	7036	
	29	32		66.75	62.08	2024	
		38		49.62	122.34	3988	1994
	9	33		50.68	63.01	1991	
120#/a K	12	39	68	45.31	167.28	5286	
	28	31		53.58	60.12	1900	
		34		49.92	96.80	3059	1528

Data Sheet 2 Sansevieria 45 - 4 Boynton
Planted 1945; treatment 1946; frozen 1947; harvest 1/2 plot 1950
(3 seasons' growth)

Treatment	Plot No.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Green Wt. --20"	+20"	Dry Fiber #/a+20"	Annual Yield #/a+20"
40#/a Nitrogen							
	6	28	48	78.41	60.98	2256	
40#/a K	17	21	36	46.46	36.30	1940	
	26	28	38	45.01	50.82	1860	
		25	41	56.63	49.36	2019	673
	10	23	25	29.04	21.78	862	
80#/a K	18	25	46	33.72	58.08	1069	
	25	25	41	47.92	92.93	2378	
		26	37	36.89	57.59	1470	490
	5	28	50	63.89	46.46	1524	
120#/a K	16	25	46	53.72	58.08	2090	
	21	28	30	40.66	47.92	1840	
		27	42	52.75	50.82	1818	606
80#/a Nitrogen							
	2	32	54	58.01	108.90	3987	
40#/a K	14	32	45	71.11	79.86	2796	
	22	28	38	62.44	58.08	2300	
		31	46	63.85	82.25	3028	1009
	8	25	36	63.89	59.53	2190	
80#/a K	11	29	41	58.01	71.15	2646	
	27	32	41	49.47	100.19	3246	
		29	39	57.12	76.96	2694	898
120#/a K	1	32	57	52.27	108.90	3987	
	19	24	38	46.46	58.08	2148	
	30	26	37	36.30	58.08	2370	
		25	44	45.01	75.02	2835	945
120#/a Nitrogen							
	4	29	44	58.08	71.15	2818	
40#/a K	20	27	33	37.75	34.85	1346	
	24	31	67	62.44	192.49	6583	
		29	48	52.76	99.49	3582	1194
	7	34	54	72.60	142.30	4753	
80#/a K	13	33	49	43.56	276.67	5599	
	29	28	24	37.75	69.98	2196	
		32	42	51.30	162.98	4182	1394
	9	29	41	66.79	84.22	3334	
120#/a K	12	33	67	60.98	140.85	4810	
	28	32	52	43.56	76.96	3002	
		31	53	57.10	101.01	3715	1238

Summary Sheet 1 Sansevieria 46 - 4 Boynton

#/a Dry fiber yield, 1949, 1950 harvest, replicate totals

		40#/a K_2O	80#/a K_2O	120#/a K_2O
40#/a	50	6,056	4,309	5,454
N	49	6,761	6,484	9,007
		12,817	10,793	14,461
Annual #/a		854	719	964
80#/a	50	9,083	8,082	8,505
N	49	12,384	6,302	6,342
		21,467	14,384	14,847
Annual #/a		1,431	959	989
120#/a	50	10,747	12,534	11,146
N	49	7,697	11,965	9,177
		18,444	24,499	20,323
Annual #/a		1,229	1,633	1,355

Analysis of Variance

Variation	DF	SS	MS	F
Total	53	113,774,662		
Whole Plot	26	88,744,954		
Replicates	2	2,874,675	1,437,338	
Treatment	8	27,193,802	3,399,225	0.93
R x T (a)	16	58,676,477	3,667,289	
Split Plot	27	25,029,708		
Years	1	763		
Y x T	8	8,248,946	1,031,118	1.11
Error b	18	16,779,999	932,222	

Treatments are not significant because of the higher value of error a. This can be reduced by analysis of covariance adjusting for stand.

Summary Sheet 2 Sansevieria 46 - 4 Boynton

#/a Dry fiber, 1950 harvest, adjusted for stand

	40#/a K_2O		80#/a K_2O		120#/a K_2O	
#/a N	Actual	Adjusted	Actual	Adjusted	Actual	Adjusted
40	2019	2349	3028	3535	3582	3024
80	1470	2307	2694	3277	4182*	4385*
120	1818	2011	2835	2784	3715	2523

*1000#/a 12-8-8 treatment, highest yield

Analysis of Covariance

Variation	DF	SSx	SPxy	SSy
Total	26	2,972.3	285,483	45,974,973
Replicate	2	105	- 1,349	125,220
Treatment	8	566.3	71,827	20,566,967
R x T	16	2,301.0	215,005	25,282,786
Treatment + E	24	2,867.3	286,832	45,849,753

Errors of Estimate

Variation	DF	SS	MS	F
Total	25			
Replicates	1			
Treatment	7	11,960,592	1,708,656	4.94**
R x T	15	5,192,756	346,184	

**Highly significant

79.46% of variation of y due to regression of x

$$byx = \frac{71,827}{566.3} = 126.8$$

Mean x = 43.6

Outline Sansevieria 46 - 5 Boynton

1. Expt.: Source of Nitrogen
2. Location: Winchester Farm, Boynton
3. Soil: Leon fine sand
4. Variety: S. guineensis
5. Treatment: (a) Check
   - (b) Sodium nitrate 50, 100, 150#/a N
   - (c) Ammonium sulfate 50, 100, 150#/a N
   - (d) Uramon 50, 100, 150#/a N
   - (e) Millorganite

   General application 1000#/a slaked lime, 60#/a 44% superphosphate, 80#/a K_2O murate of potash, 25#/a manganese sulfate, 25#/a copper sulfate, 10#/a zinc sulfate, 5#/a borax
6. Design: Single observation plots 3 x 15 feet

Data Sheet 1 Sansevieria 46 -5 Boynton

Planted 1945, frosted 1947, harvest 1/2 plot 1949 (2 seasons' growth)

Treatment	Plot No.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Green Wt.		Dry Fiber #/a+20"	Annual Yield #/a+20"
				-20"	+20"		
Control	5			24.50	0.00	--	
	10			22.18	1.19	31	
	15	22	28	22.22	7.41	193	
Nitrate of Soda							
50#/a N	4	27		63.48	29.41	888	444
100#/a N	6	29		63.60	42.26	1276	638
150#/a N	13	30	48	51.79	37.27	1126	563
Ammonium sulfate							
50#/a N	3	28		51.34	17.74	596	298
100#/a N	8	34		40.71	68.86	2314	1157
150#/a N	11	36	46	50.23	56.36	1894	947
Millorganite							
50#/a N	1	30		35.75	9.61	325	162
100#/a N	7	24		64.84	44.73	1512	756
150#/a N	12	31	45	49.50	46.73	1579	789
Uramon							
50#/a N	2	33		43.41	74.18	2671	1335
100#/a N	9	40		70.79	71.15	2561	1280
150#/a N	14	42	66	59.17	122.69	4417	2208

Data Sheet 2 Sansevieria 46 - 5 Boynton

Planted 1945, frosted 1947, harvest 1/2 plot 1950

Treatment	Plot No.	Av. Ht.	Leaves per Sq. Ft.	Cal. Acre Yield Tons Green Wt.		Dry Fiber #/a+20"	Annual Yield #/a+20"
				-20"	+20"		
Control	5	9	13	.58	Nil	—	—
	10	10	11	1.16	Nil	—	—
	15	10	22	3.77	Nil	—	—
Nitrate of Soda							
50#/a N	4	23	50	51.54	31.94	958	319
100#/a N	6	23	32	51.54	23.23	790	263
150#/a N	13	28	90	45.01	75.50	2582	861
Ammonium Sulfate							
50#/a N	3	22	37	45.73	21.78	845	282
100#/a N	8	25	36	37.02	69.70	2119	706
150#/a N	11	27	35	35.57	66.79	2164	721
Millorganite							
50#/a N	1	26	68	48.64	44.29	1476	491
100#/a N	7	26	34	39.20	36.30	1372	457
150#/a N	12	26	49	47.19	60.98	2329	776
Uramon							
50#/a N	2	27	38	44.28	55.90	2024	675
100#/a N	9	29	54	42.83	91.48	3074	1025
150#/a N	14	30	67	68.24	190.94	6607	2202

Project G-5-0   Sansevieria 47-1-5   Boynton, Fla.

Outline of Expt.:

47-1 Botanical Characteristics
47-2 Percent Yield of Fiber
47-3 Acre Yield Characteristics
47-4 Frost Resistance
~~47-5 Fiber Strength~~

Abstract of Results:

The species of sansevieria have been classified according to botanical characteristics of the leaf, the rhizome and the fibrous root system. Representative species of these three groups have been studied for their potentiality for fiber production in South Florida.

The cylindrical leaf species (Group I) have been found unsatisfactory for commercial production because of their difficulty of propagation, slow rate of growth and low acre yield of fiber.

The coriaceous leaf species (Group II) have shown some promise for annual harvesting because of their ability to produce a rapid growth of leaves when planted from whole plants or rhizomes.

Species of group II have the highest percent of fiber, but have comparatively short leaves and are readily damaged by low temperatures.

The narrow or petiolar leaf species (Group III) offer the best potentialities for production of fiber because of their ability to grow rapidly from leaf cuttings, longer length of leaf and high yield of fiber per acre.

S. trifasciata appears to have the best potentialities for fiber production because of its frost resistance, or tolerance, and greater length of fiber.

Data Sheet 1 Sansevieria 47-1 Boynton

Observation Plantings of:

S. *guineensis* from Voss Farm of Hypoluxo, Florida

S. *trifasciata* from Mrs. Smith of Arcadia, Florida

S. *Laurentii* from Benson Farm, Boynton, Florida

S. *longiflora* from Sebring, Florida, intersection of So. Lakeview Drive and Hickory Street

S. *liberica* from East Africa seed obtained by Edwards

S. *cylindrica* from Boynton, Florida

S. Ehrenbergii from Welsingham, Harvard University Gardens, Cuba

Data Sheet 2 Sansevieria 47-1 Boynton
Observations Dec. 1948, leaf characteristics

	S. Ehrenbergii*		S. cylindrica	
	Blade		Blade	
	Width	Length	Width	Length
1	1.6	31.0	0.8	38.0
2	1.0	29.0	1.3	29.0
3	1.0	30.0	1.1	24.0
4	1.3	29.0	1.1	38.0
5	2.1	35.0	0.9	23.0
6	2.5	37.0	1.0	24.0
7	1.0	29.5	1.0	29.9
8	1.1	29.5	1.0	31.2
9	1.3	29.0	1.0	28.4
10	1.0	31.0	1.0	23.0
Mean	1.4	31.0	1.0	29.0

	S. liberica			S. longiflora		
	Petiole	Blade		Petiole	Blade	
	Length	Width	Length	Length	Width	Length
1	3.0	3.3	26.0	9.0	4.5	20.0
2	4.0	2.5	29.0	11.0	5.0	20.0
3	3.0	3.2	23.0	8.5	4.0	25.5
4	8.5	2.5	27.0	14.0	4.3	26.0
5	6.5	3.2	27.0	12.5	4.5	25.5
6	5.0	3.0	27.0	9.0	4.5	27.0
7	4.5	3.5	27.5	13.0	4.0	29.0
8	6.0	2.7	22.5	13.0	4.5	29.0
9	4.0	2.5	24.0	16.0	4.5	29.0
10	4.0	2.7	26.0	11.0	4.0	22.0
Mean	4.9	2.8	30.8	11.7	4.4	25.1

	S. guineensis			S. Laurentii			S. trifasciata		
	Petiole	Blade		Petiole	Blade		Petiole	Blade	
	Length	Width	Lemgth	Lemgth	Width	Length	Length	Width	Length
	14.0	4.0	24.0	24.0	3.0	25.5	28.0	2.8	26.5
	21.0	2.0	29.0	25.0	3.1	24.0	30.0	2.3	23.0
	13.5	4.0	22.0	29.0	2.0	19.0	41.0	2.0	22.5
	14.5	4.0	25.0	17.5	3.3	24.5	34.0	2.1	21.0
	13.0	3.5	20.5	22.5	2.1	23.5	38.0	2.2	24.5
	13.0	3.3	13.5	25.0	2.3	23.0	34.5	2.3	25.0
	13.0	3.5	19.5	22.0	2.5	22.0	34.5	2.0	29.5
	17.0	3.5	15.5	20.0	3.0	22.0	37.0	2.0	21.0
	16.0	2.5	19.0	21.0	2.3	22.0	21.5	2.5	29.5
	14.5	3.3	24.0	21.0	2.5	26.0	38.0	2.5	22.0
Mean	15.0	3.3	21.2	22.7	3.5	23.3	33.7	2.3	23.6

Data Sheet 3 Sansevieria 47-1
Observations May 1950

Boynton

	S. Ehrenbergii			S. cylindrica		
	Fiberous roots	Rhizomes		Fiberous roots	Rhizomes	
		Width	Length		Width	Length
1	19	0.8	8.0	8	0.6	7.0
2	23	0.9	11.0	26	1.0	6.5
3	35	0.8	9.0	18	0.9	8.1
4	15	0.9	5.0	19	0.6	11.0
5	12	0.9	8.5	22	0.8	3.5
6	21	0.6	10.0	15	0.7	9.5
7	18	0.4	9.6	14	0.7	6.0
8	16	0.7	10.4	38	0.6	8.5
9	13	0.5	8.3	20	0.5	5.0
10	28	0.5	11.7	10	0.5	6.0
Mean	20	0.7	8.6	19	0.7	7.1

	S. liberica			S. longiflora		
	Fiberous roots	Rhizomes		Fiberous roots	Rhizomes	
		Width	Length		Width	Length
1	14	1.7	10.0	12	1.6	14.0
2	15	1.0	12.0	15	2.6	10.0
3	12	1.0	10.0	16	1.7	13.0
4	17	0.9	9.0	17	1.6	10.0
5	23	1.2	20.0	19	1.6	8.0
6	9	1.2	14.0	20	1.1	12.0
7	18	0.8	15.0	13	2.0	14.0
8	26	1.0	12.0	12	1.1	13.0
9	16	1.2	11.0	9	1.4	11.0
10	20	1.0	14.0	10	1.1	16.0
Mean	17	1.1	12.7	14	1.4	12.1

	S. guineensis			S. Laurentii (g)			S. trifasciata		
	Fibrous roots	Rhizomes		Fibrous roots	Rhizomes		Fibrous roots	Rhizomes	
		Width	Length		Width	Length		Width	Length
	3	0.7	14.0	5	0.4	4.0	6	0.5	6.0
	10	0.7	8.0	6	0.5	5.0	8	0.7	8.0
	9	0.8	8.0	7	0.5	3.5	4	0.5	7.0
	6	0.8	9.0	12	0.5	6.0	3	0.7	5.0
	10	0.6	9.0	9	0.5	4.0	5	0.6	4.5
	5	0.9	7.0	17	0.4	3.5	8	0.7	4.5
	7	0.7	8.0	6	0.4	4.0	7	0.5	4.0
	5	0.5	7.0	8	0.4	5.5	8	0.5	8.0
	9	0.6	7.0	6	0.5	3.5	4	0.5	5.0
	7	0.6	8.0	14	0.4	5.0	7	0.6	5.0
Mean	7	0.7	8.5	8	.5	4.5	6	0.6	6.7

Summary Sheet 1. Sansevieria 47-1 Boynton

Average Measurements in Inches of Sansevieria Species in Observation Plots, Boynton, Florida

Sansevieria Species	Fibrous Roots	Rhizome Width	Rhizome Length	Petiole Length	Blade Width	Blade Length
Group I						
S. Ehrenbergii	20	0.7	8.6	--	1.4	31.0
S. cylindrica	19	0.7	7.1	--	1.0	29.0
Group II						
S. liberica	17	1.1	12.7	4.9	2.8	26.0
S. longiflora	14	1.4	12.1	11.0	4.4	25.0
Group III						
S. guineensis	7	0.7	8.5	15.0	3.3	21.2
S. Laurentii	8	0.6	4.5	22.7	3.5	23.3
S. trifasciata	6	0.6	6.7	33.7	2.3	23.6

Summary Sheet 2. Sansevieria 47-2 Boynton

Vegetative Characteristics of Representative Species of Agronomic Groups of Sansevieria

Observations July 1950

Group I		
Upright cylindrical leaf; Small to medium rhizomes; few shoots; Long fibrous roots	Semi-round leaf on short stem	*S. Ehrenbergii*
	Smooth round leaf	*S. cylindrica*
Group II		
Flat coriaceous leaf; Large rhizomes, many shoots; Long fibrous roots	Flat dark green very coriaceous lightly mottled leaves, very short petiole	*S. liberica*
	Flat, dark green, semi-coriaceous, broad, distinctly mottled leaf, short petiole	*S. longiflora*
Group III		
Long petiolar leaf; Small rhizomes, several shoots; Short fibrous roots	Flat, light green lightly mottled, fibrous margined leaf, medium petiole	*S. guineensis*
	Flat, narrow leaf, medium green mottled, non-fibrous margin, long petiole	*S. Laurentii*
	Flat, narrow, dark green distinctly mottled leaf with non-fibrous margin and very long petiole	*S. trifasciata*

Summary Sheet 1 Sansevieria 47-2 Boynton

Retted Dec. 1949, Decorticated May 1950. Approx. 3 yr. stand

	Decorticated Fiber				Retted Fiber			
	Base	Middle	Tip	byx	Base	Middle	Tip	byx
Group I S. Ehrenbergii - semi-round leaf								
y	1.44	1.85	2.24	0.41	1.57	1.63	1.96	0.27
x	0.30	1.42	2.18		0.58	1.00	2.08	
S. cylindrica - round leaf								
y	1.53	1.78	1.82	0.41	1.31	1.73	2.23	0.54
x	1.00	1.77	2.56		0.38	1.29	2.08	
Group II S. liberica - coriaceous leaf								
y	3.54	2.75	2.33	-0.69	3.07	2.88	2.49	-0.41
x	0.17	1.08	1.92		0.77	1.48	2.20	
S. longiflora - coriaceous leaf								
y	3.64	1.84	1.42	-1.06	3.63	1.93	1.21	-0.99
x	0.17	1.17	2.25		0.48	1.77	2.95	
Group III S. guineensis - intermediate leaf								
y	2.76	2.11	1.74	-0.60	2.95	2.12	1.54	-0.67
x	0.30	1.28	2.01		0.63	1.80	2.73	
S. Laurentii - petiolar leaf								
y	2.00	1.72	1.17	-0.46	1.72	1.19	0.88	-0.34
x	0.29	1.45	2.20		0.92	2.50	3.39	
S. trifasciata - petiolar leaf								
y	2.35	1.80	1.44	-0.27	2.45	1.80	1.38	-0.35
x	0.25	2.17	3.58		1.39	3.42	4.39	

y - % dry fiber per green weight of section
x - height of plant to mid-section
byx, regression of fiber on plant height

Data Sheet 1 Sansevieria 47-3 Boynton
1948 harvest

Average Height Inches	Leaves Sq. Ft. +20"	Cal. Acre Yield Tons Green Wt. -20	+20	% Decort. Fiber	Dry Fiber #/a +20"
S. *guineensis* - 2 year growth					
32	12	---	67.84	1.60	2171
S. *trifasciata* - 3 year growth					
50	34		259.28	1.48	7475
S. *longiflora* - 2 year growth					
30	15	100.18	167.51	1.96	2646
S. *Laurentii* - 2 year growth					
36	23		82.05	0.96	1591
S. *Laurentii* - 3 year growth					
41	34		158.80	1.75	3970

Data Sheet 3   Sansevieria 47-3

1949 harvest

Boynton
Port Mayaca
Belle Glade

Plot No.	Age in Months	Total Leaves Sq. Ft.	Tons Green Wt./a ≠20"	% Decort. Fiber	Dry Fiber #/a ≠20"
Sansevieria guineensis					
(a) Leon fine sand					
1	36	41	119.79	1.63	3905
2	36	44	81.03	1.49	2435
(b) Everglades peat soil					
1	10	28	66.79	1.10	902
Sansevieria trifasciata					
(a) Leon fine sand					
1	48	89	436.51	1.44	12571
2	24	--	129.81	1.55	4024
3	24	73	102.80	1.56	3207
(b) Everglades peat soil					
1	10	38	54.74	0.88	963
(c) Davie fine sand					
1	18	33	85.88	1.09	1872
Sansevieria longiflora					
(a) Leon fine sand					
1	36	--	122.40	2.09	5116
2	36	30	136.78	1.99	5444
3	36	--	143.31	2.14	6134
(b) Everglades peat soil					
1	10	--	88.98	1.14	2029
Sansevieria Laurentii					
(a) Leon fine sand					
1	48	60	322.62	1.17	7549

Data Sheet 4 Sansevieria 47-3 Boynton
1950 harvest

Average Height Inches	Leaves Sq. Ft. +20"	Cal. Acre Yield Tons Green Wt. -20	+20	% Decort. Fiber	Dry Fiber #/a +20"
	S. Ehrenbergii - 2 year growth				
31	3	--	39.42	1.62	1277
	S. cylindrica - 2 year growth				
29	6	--	34.62	1.32	914
	S. liberica - 2 year growth				
30	11	--	63.46	2.36	2945
	S. longiflora - 2 year growth				
30	13	--	86.15	1.79	3084
	S. guineensis - 2 year growth				
32	17	--	67.33	1.56	2101
	S. guineensis - 3 year growth				
31	20	--	100.41	1.56	3132
	S. trifasciata - 15 month regrowth				
30	77	72.60	77.44		
	S. trifasciata - 3 year growth				
-20"					
20-36"			159.72	1.36	4344
36+"			94.38	1.50	2831
+20"					7175
	S. trifasciata - 5 year growth				
-20"					
20-36"			200.86	1.17	4700
36+"			302.50	1.82	11011
+20"					15711

Summary Sheet 1   Sansevieria 47-3   Boynton

Fiber Yield Characteristics of Sansevieria species of Observation Plots as Grown at Boynton, Florida

Age of Growth	Average Plant Height in Inches	Leaves Harvested Per Sq. Ft. (Over 20 Inches)	Computed Acre Yield Tons Green Wt.	Average Percent Decorticated Dry Fiber	Computed Acre Yields Pounds Dry Fiber	Annual Acre Yield, Pounds Dry Fiber
Group I						
		S. Ehrenbergii				
2 Year	31	3	39.42	1.62	1277	638
		S. cylindrica				
2 Year	29	6	34.62	1.32	914	457
Group II		*S. liberica*				
2 Year	30	11	63.46	2.36	2945	1497
		S. longiflora				
2 Year	30	13	86.15	1.79	3084	1542
3 Year	35	25	134.16	2.07	5554	1851
Group III						
		S. guineensis				
2 Year	32	17	67.33	1.56	2101	1050
3 Year	31	20	100.41	1.56	3132	1044
		S. Laurentii				
2 Year	36	23	82.05	0.96	1591	796
3 Year	41	34	158.80	1.25	3970	1323
		S. trifasciata				
2 Year	43	29	116.80	1.56	3615	1806
3 Year	50	34	259.28	1.48	7475	2491

Boynton

Data Sheet 3 Sansevieria 44 - 1

Yield of observation plots

	Average Plant Height	Leaves per Sq. Ft.	Calculated Acre Yield Tons Green Weight			Dry Fiber #/a+20"	Annual Yield #/a+20"
			-20"	20-36"	36"+		
Cultivated *S. guineensis*, 2 year growth	32	17	--	67.33	--	2101	1050
3 year growth	31	20	--	100.41	--	3170	1050
4 year growth	35	25	--	129.10	--	4364	1091
7 year growth	30	61	9.68	203.2	--	6993	999
Cultivated *S. trifasciata*, 2 year growth	43	29	40.75	116.80	—	3615	1806
3 year growth	50	34	50.82	172.83	81.24	7475	2491
4 year growth	57	82	9.98	189.18	245.33	12571	3142
5 year growth	55	93	9.65	200.86	302.50	15712	3143

Data Sheet 1 Sansevieria 47-4 Boynton

Plants Frozen Feb. 1947, Growth Observations Feb. 1948

	Not Cut After Freeze		Cut After Freeze	
	Plant Height	Leaves per Sq. Ft.	Plant Height	Leaves per Sq. Ft.
S. guineensis	28	10	30	18
S. longiflora	30	18	32	10
S. trifasciata	40	43		
S. Laurentii	42	38		

S. Laurentii and *S. trifasciata* were not severely frozen in February 1947. *S. guineensis* and *S. longiflora* were badly damaged.

Plots cut back recovered more rapidly than plots not cut back.

S. guineensis was also badly damaged in Feb. 1947 at Belle Glade, Ft. Myers and Bradenton. *S. trifasciata* and *S. longiflora* were completely frozen back at Belle Glade. *S. trifasciata* was not seriously injured at Port Mayaca or Boynton.

Data Sheet 2 Sansevieria 47-4 Boynton

FROST OBSERVATIONS, Field Trip to Boynton by J. F. Joyner and E. O. Gangstad, 29 December 50

Dog fennel completely killed at Belle Glade and Loxahatchee; moderate injury at Greenacres City and Boynton (Winchester Farm).

Moderate to heavy frost injury of Sansevieria guineensis (clean cultivation, moderate fertilization) at Boynton, frozen to ground at Belle Glade.

Observed frost injury - 1 year old stand, regrowth from 1949 harvest; height of plant and injury of leaf tip in inches at Boynton

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	31	15	33	18	36	13
2	31	15	28	20	36	6
3	29	21	25	15	35	11
4	28	17	22	17	34	3
5	28	17	22	13	31	8
6	27	15	22	12	29	9
7	26	13	22	10	27	7
8	25	15	21	13	27	6
9	23	14	21	3	25	5
10	23	13	20	10	24	7
Av.	27.1	15.5	23.6	13.1	30.4	7.5
%		57.2		55.5		24.7
Av. %						45.8

S. Laurentii - 1 year old established stand, harvested in 1949, height and frost injury of leaf tip in inches

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	25	0	24	0	27	0
2	24	0	22	0	26	0
3	24	0	20	0	26	0
4	23	0	21	0	26	0
5	23	0	21	0	26	0
6	23	0	21	0	26	0
7	23	0	20	0	25	0
8	23	2	20	0	25	0
9	21	0	20	0	24	0
10	21	0	20	0	23	0
Av.	23.0	0.2	20.9	0.0	25.4	0.0
%		0.9		0.0		0.0
Av. %						0.3

Data Sheet 3 Sansevieria 47-4
Frost Observations 29 Dec. 50

Boynton

S. longiflora - 1 year old, established stand, harvested in 1949, height and frost injury of leaf tips in inches.

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	33	0	34	0	32	0
2	33	0	33	0	30	0
3	32	0	29	0	30	0
4	31	0	29	0	30	2
5	31	0	29	0	29	0
6	30	2	28	0	29	0
7	30	2	28	0	27	0
8	30	0	26	5	27	0
9	29	0	25	0	27	0
10	28	0	24	12	25	0
Av.	30.7	0.4	26.5	1.7	28.6	0.2
%		1.3		6.4		0.7
Av. %						2.8

S. trifasciata - 1 year old established stand, harvested in 1949, height and frost injury of leaf tip in inches

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	33	0	32	0	34	0
2	33	0	30	0	33	0
3	32	0	30	0	29	0
4	31	0	30	2	29	0
5	31	0	29	0	29	0
6	30	0	29	0	28	0
7	30	2	27	0	29	0
8	30	2	27	0	26	5
9	29	0	27	0	25	0
10	28	0	25	0	24	12
Av.	30.7	0.4	28.6	0.2	28.5	1.7
%		1.3		0.7		6.0
Av. %						2.7

Project G-5-0 Sansevieria 48-1-5

Object: Study agronomic factors affecting the quality of sansevieria fiber

48-1. Effect of age and species
48-2. Effect of climate and location
48-3. Effect of cultural treatments, Boynton
48-4. Effect of cultural treatments, Ft. Myers
48-5. Effect of fertility treatments, Boynton

Abstract of Results:

Differences of fiber quality of species grown at a particular location are relatively small. *S. laurentii* tended to have the highest quality. The strength of the fiber was lowest on the muck soil and did not differ greatly between sandy locations. Cultural and fertility treatments did not significantly affect fiber quality in these experiments.

Summary Sheet 1 Sansevieria 48-1 Boynton

Testing Laboratory	Sansevieria Species	Tensile Strength 3 inch	½ inch
	1947 Harvest		
Beltsville	*S. guineensis*	38,600	
Belle Glade	" "		57,200
Beltsville	*S. trifasciata*	51,000	
Belle Glade	" "		65,300
Beltsville	*S. longiflora*	50,200	
Belle Glade	" "		63,200
Beltsville	*S. Laurentii*	56,000	
Belle Glade	" "		64,300
	1948 Harvest		
Beltsville	*S. guineensis*	42,900	55,200
Belle Glade	" "		62,500
Beltsville	*S. trifasciata*	45,800	52,200
Belle Glade	" "		64,000
Beltsville	*S. longiflora*	44,300	45,500
Belle Glade	" "		65,300
Beltsville	*S. Laurentii*	46,400	50,500
Belle Glade	" "		70,400
	1949 Harvest		
Beltsville	*S. guineensis*		51,800
Belle Glade	" "		
Beltsville	*S. trifasciata*		54,200
Belle Glade	" "		60,100
Beltsville	*S. longiflora*		60,000
Belle Glade	" "		64,700
Beltsville	*S. Laurentii*		56,200
Belle Glade	" "		64,000

Data Sheet 1 Sansevieria 48-2 Florida

Effect of Climate and Soil on Fiber Quality

Location	Tensile Strength lbs. per sq. in.	Knot Strength lbs. per sq. in.	Abrasion Resistance Cycles to Failure	Flex Life Cycles to Failure
Cultivated, warm area, sandy soil				
Boynton	58,400	14,900	571	8,775
Ft. Myers	55,500	12,700	2,222	8,255
	56,920	13,800	1,397	8,515
Wild stand, warm area, sandy soil				
Bradenton	54,500	12,900	1,645	16,483
Boynton	51,200	14,400	2,206	8,369
	52,850	13,650	1,926	12,426
Wild stand, moderately warm area, sandy soil				
Arcadia	54,000	15,500	1,137	11,923
Sebring	50,200	15,500	2,775	22,280
	52,100	15,500	1,856	17,102
Wild stand, cold area, sandy soil				
Micco	57,500	16,900	2,432	14,010
Okeechobee	50,700	16,300	2,125	20,434
	54,100	16,600	2,279	17,222
Wild stand, cold area, muck soil				
Moore Haven	41,400	10,800	2,290	16,561
Belle Glade	40,200	11,300	2,553	23,574
	40,800	11,050	2,421	20,067

Tests by Fiber Laboratory, Belle Glade. T.S., 20 breaks, 6 determinations for abrasion and flex.

Remarks: Low tensile strength at Belle Glade
Low flex life at Boynton

Summary Sheet 1 Sansevieria 47-5

Sansevieria Species	Location	Treatment	#/Sq. Inch 0.5 in. Break
S. guineensis	Boynton	Cult. Fert.	78,974
"	Palmetto	Cult. Fert.	68,306
"	Ft. Myers	Cult. Fert.	65,938
"	Ft. Myers	Cult. Not. Fert.	62,814
"	Terra Ceia Island	Old Leaves Wild Plants	53,918
S. trifasoiata	Bradenton	Wild Plants in Shade	73,714

Sansevieria Species	Location	#/Sq. In. 3 In. Break	Fiber Count
S. guineensis	Boynton	38.6	94.2
S. intermedia	Boynton	38.0	80.2
S. cylindrica	Boynton	50.2	104.1
S. longiflora	Boynton	50.2	84.0
S. Laurentii (g)	Boynton	54.4	102.7
S. Laurentii (y)	Boynton	56.0	92.5
S. trifasciata	Boynton	51.0	75.8

Sansevieria Species	Treatment	#/Sq. In. 3 In. Break	#/Sq. In. Knot Strength
S. guineensis	No mulch Short leaves	46,458	15,358
"	Mulch Short leaves	47,088	14,328
"	Wide leaves	59,014	14,486
"	Medium leaves	55,109	15,967
"	Narrow leaves	55,392	14,175
"	2nd growth	47,851	11,524
S. Longiflora	Short Leaves	54,332	14,496
	Long leaves	55,088	20,425
S. trifasciata	Short leaves	54,095	17,415
	Long leaves	51,919	12,426

Data Sheet 1 Sansevieria 48-4 Fort Myers, Fla.

Fiber Quality Data of Fertility Trial

Treatment	Tensile Strength lbs. per sq. in.	Knot Strength lbs. per sq. in.	Abrasion Resistance Cycles to Failure	Flex Life Cycles to Failure
Check	46,800	13,600	1,234	7,253
	58,200	10,900	2,472	10,897
	56,000	14,100	1,647	7,502
	53,667	12,867	1,784	8,551
1000#/a 4-7-5 Fert.	48,400	12,200	2,527	8,534
	54,600	12,500	1,266	6,717
	62,600	15,800	5,140	9,548
	55,200	13,500	2,978	8,266
2000#/a 4-7-5 Fert.	59,600	12,800	1,382	7,670
	57,400	12,700	5,119	9,188
	56,200	11,900	2,739	10,763
Peas Cover Crop	53,200	14,300	412	6,899
	56,600	10,800	1,876	5,378
	59,900	11,400	6,272	15,178
	56,576	12,167	2,853	9,152
Uramon 120#N	58,100	12,600	519	6,563
	61,000	12,700	1,927	8,415
	46,100	11,900	2,488	7,402
	55,066	12,400	1,645	7,457
3000#/a 4-7-5 Fert.	55,400	12,200	1,460	8,590
	55,400	15,100	884	7,478
	53,800	10,400	645	4,260
	54,867	12,567	996	6,896
	N.S.	N.S.	N.S.	N.S.

Remarks: High nitrogen tends to reduce fiber quality

Summary Sheet 1   Sansevieria 48-5   Boynton

Fiber quality of fertilizer rate experiments, 1949 harvest season, of *S. guineensis*

Treatment	Tensile Strength lbs. per sq. in.	Knot Strength lbs. per sq. in.	Abrasion Resistance Cycles to Failure	Flex Life Cycles to Failure
Control	58,033	13,500	3,409	11,957
Ca 500#/a	59,500	13,733	2,519	9,660
Ca 2000#/a	57,533	14,066	3,299	7,104
N 40#/a	53,866	13,333	2,436	11,972
N 120#/a	52,766	13,700	2,474	13,477
P 40#/a	51,666	12,966	2,502	12,174
P 80#/a	53,733	12,500	2,047	14,932
K 40#/a	58,700	13,333	2,073	11,008
K 80#/a	56,166	12,087	1,724	11,971
	N.S.	N.S.	N.S.	N.S.

NPK = 8-8-8 unless otherwise noted.
Tensile knot strength, average of 30 breaks
Abrasion and flex, average of 6 determinations

Project G-50 Sansevieria

Cultural and Fertility Studies of S. trifasciata on Leon fine sand at Boynton, Florida.

Cultural Methods	49-1
Sources of Nitrogen	49-2
NPK Factorial	49-3
Nursery Propagation	49-4
Labor Hours of Hand Weeding	49-5

Abstract of Results: The surface area of the field in these experiments, planted with a row planter at 25,000 plants per acre in rows 21 inches apart, was covered over with plants during the third year. The yield of the 1951 harvest should be considered the first year of harvest. It is approximately equal to the first year of regrowth after cutting an established stand.

The growth of S. trifasciata was increased over check be fertilizers, shade, cover crops and mulch. The effects of cover crops are probably due to a continued supply of available nutrients over the season of growth.

An application of 1/3 Milorganite, 1/3 Uramon and 1/3 NaNitrate nitrogen gave a better response than those forms taken separately, indicating a better balance of availability over the whole season of growth.

In a 3 x 3 x 3 NPK factorial, cold injury was found to be directly related to low levels of N - K. Cold resistance, growth and yield were very much increased by application of N and K. P did not increase the number of plants per square foot and total fiber yield. A ratio of 3-1-2, 150#/a N, 50#/a of P_2O_5 and 100#/a of K_2O are indicated by these results.

Nursery plantings of leaf cuttings reproduced at a rate of approximately 3 plants per cutting per annum. One acre of leaf cuttings planted at a rate of 40,000 cuttings per acre planted about 5 acres of field, planting at a rate of 25,000 plants per acre.

Hand weeding required 1442 man hours per acre for the 1949 season.

Outline Sansevieria 49-1 Boynton, Fla.
Revised (50-15) - July 19, 1950
Revised (51-8) - April 11, 1951

1. Expt.: Cultural methods

2. Location: Winchester Farm, Boynton, Fla.

3. Soil: Leon fine sand

4. Variety: _S. trifasciata_ planted Dec. 1948

5. Treatment:
   - a) Unfertilized check, not cultivated
   - b) Cow manure
   - c) Velvet beans
   - d) Fertilized 1000#/a 12-8-8, cultivated
   - e) Cow peas
   - f) Hairy indigo
   - g) Artificial shade
   - h) Chicken manure

6. Design: Random block, 2 replicates, 12 x 18 ft. plot

7. Field Plan:

a/1	b/2	c/3	d/4	e/5	f/6	g/7	h/8
h/9	f/10	c/11	e/12	b/13	a/14	d/15	g/16

8. Abstract of Results: Artificial shade, commercial fertilizer, mulch and cover crops increased the yield of fiber. Although the highest yield was obtained from the cover crop of hairy indigo, the debris and irregularity of the sansevieria make such a treatment impractical as a commercial operation.

Boynton

Data Sheet 1 Sansevieria 49-1, 50-15, 51-8
Harvested 23 Nov. 51 with Gravelly mower

	Plant Height	Leaves per Sq. Ft.	Cal. Acre Yield 1000# Green Wt.		% Dry Fiber	Dry Fiber #/a +20"
			-20"	+20"		
Check - not fertilized						
	11	12	7.8	Nil	0.89	--
	17	34	18.7	Nil	0.99	--
Av.	14	23	13.3			
Check - fertilized						
	24	23	30.3	16.3	1.77	289
	26	20	21.8	5.4	1.64	89
Av.	25	22	26.0	10.9	1.70	189
Check - Fertilized - artificial shade						
	33	23	30.3	27.2	1.56	424
	24	17	24.1	16.3	1.30	212
Av.	29	20	27.2	21.8	1.43	318
Velvet beans - cover crop - not fertilized						
	34	29	29.5	22.5	1.93	434
	27	27	25.7	9.3	1.74	162
Av.	31	28	27.6	15.9	1.84	298
Cow peas - cover crop - not fertilized						
	30	30	21.8	26.4	1.91	504
	27	17	20.2	7.8	1.46	114
Av.	29	23	21.0	17.1	1.69	309
Hairy indigo - cover crop - not fertilized						
	40	27	35.8	43.6	1.84	802
	36	26	33.4	24.1	1.68	405
Av.	38	26	34.6	33.9	1.76	603
Cow manure - mulch cover - natural fertilizer						
	26	33	44.3	31.9	1.75	558
	28	29	40.4	19.4	1.71	332
Av.	27	31	42.4	25.7	1.73	442
Chicken manure - mulch cover - natural fertilizer						
	30	25	45.1	35.8	1.71	613
	44	30	40.4	19.4	1.76	341
Av.	37	28	42.8	27.6	1.73	477
LSD	12.5	NS	9.9	10.2	.38	208

Outline Sansevieria 49-2 Boynton, Fla.

1. Expt.: Source of Nitrogen

2. Location: O. R. Winchester Farm

3. Soil: Leon fine sand

4. Variety: S. trifasciata

5. Treatments, Apr. - Mar. application 100#/a N

   a. Check
   b. 4910B
   c. 4933
   d. 4980
   e. $(NH_4)_2SO_4$
   f. Millorganite
   g. Castor pumice
   h. Uramon
   i. 1/2 Millorganite, 1/2 Uramon
   j. 1/3 Millorganite, 1/3 Uramon, 1/3 Na Nitrate
   k. 1/3 Millorganite, 1/3 Uramon, 1/3 Am. sulf.
   l. Sodium nitrate

   All plots: 100#/a P_2O_5 as superposphate/a
   100# K_2O as murate of potash
   25# Copper sulfate
   25# Manganese sulfate
   10# Zinc sulfate
   5# Borax

6. Design: Randomized block, 2 replications

7. Abstract of Results: The nitrogen treatment, 1/3 Millorganite, 1/3 Uramon and 1/3 Na nitrate gave the highest yield. Millorganite was more effective than castor pumice as a source of nitrogen. The combinations of ammonium sulfate and Uramon gave very low yields.

Data Sheet 1 Sansevieria 49-2 Boynton
Harvested 23 Nov. 51 with Gravelly mower

Average Height	Leaves per Sq. Ft.	Cal. Acre Yield 1000#/a Gr. Wt. -20"	+20"	% Dry Fiber	Dry Fiber #/a+20"
Check - no nitrogen					
22	17	24	5	1.64	82
Nitrate of Soda					
27	21	24	12	1.56	177
Ammonium Sulfate					
27	21	21	10	1.52	152
Uraform 4980					
20	19	18	-	1.34	-
Uraform 4910B					
23	25	22	5	1.31	66
Uraform 4933					
22	17	26	11	1.56	172
Castor pumice					
21	21	28	-	1.50	-
Millorganite					
29	21	23	13	1.60	208
Uramon					
33	21	23	19	1.67	317
1/2 Uramon plus 1/2 Millorganite					
27	23	29	15	1.49	223
1/3 Uramon, 1/3 Millorganite, 1/3 Ammonium Sulfate					
22	22	25	-	1.41	-
1/3 Uramon, 1/3 Millorganite/ 1/3 Sodium Nitrate					
34	28	30	23	1.64	377

THE EFFECTS OF NPK FERTILIZATION ON THE GROWTH, THE LEVEL OF PHOSPHOROUS AND POTASSIUM IN THE SOIL AND TISSUE, AND THE COLD INJURY OF *SANSEVIERIA TRIFASCIATA* PRAIN

By E. O. Gangstad, J. F. Joyner, J. B. Pate,
C. C. Seale and W. T. Forsee

OBJECT OF EXPERIMENT: One of the most serious limitations of the production of sansevieria fiber in Florida is the injury of the plant by occasional freezing and near-freezing temperatures during the mid-winter season. Of the species suitable for fiber production, *Sansevieria trifasciata* Prain has been found to be most cold resistant, but has shown varying degrees of injury under different conditions. The relationship of cold resistance to fertility treatments are observed in the following experiment.

ABSTRACT OF RESULTS: The growth, level of phosphorous and potassium in the soil and plant tissue and the cold injury of *Sansevieria trifasciata* Prain were studied in a 3 x 3 x 3 NPK factorial experiment at 0, 75 and 150#/a of N; 0, 50 and 100#/a of P_2O_5 and 100#/a of K_2O at Boynton, Florida.

1. It is found that the growth in height is directly related to N and K fertilization. Applications of P did not have a significant effect on height. Data Sheet 1.

2. The level of P in the soil is directly related to the application of phosphate and is not significantly affected by the N and K treatments. Data Sheet 2.

3. The level of K in the soil is directly related to the rate of application of K. It is not significantly affected by N and P. Data Sheet 3.

4. The level of P in the plant tissue is directly related to the rate of application of P but is decreased by N and K. Data Sheet. 4.

5. The level of K in the tissue is directly related to the application of K. It is decreased by N but is not affected by the P treatments. Data Sheet 5.

6. The injury due to cold is directly related to N and K fertilization. It is not greatly affected by the application of P, but there is evidence to indicate that proper and efficient utilization of P depends upon the balance of N and K. Adequate fertilization with N and K very much increased the ability of the plant to withstand cold. Data Sheet. 6.

Outline Sansevieria 49-3 Boynton

1. Expt.: NPK factorial

2. Location: O. R. Winchester Farm, near Boynton

3. Soil Type: Leon fine sand

4. Variety: S. trifasciata (Planted Dec. 48)

5. Treatment:

	0	1	2
a) N (Uramon)	0	75	150#/acre
b) P_2O_5 (Super)	0	50	100#/acre
c) K_2O (Murate)	0	50	100#/acre

d) Trace elements:

Copper sulfate 25#/acre

Manganese sulfate 25#/acre

Zinc sulfate 10#/acre

Borax 5#/acre

applied annually during Mar. - April

6. Design: 3 x 3 x 3 factorial, second order interactions confounded
54, plots, 10 x 13 ft.

Data Sheet 1 Sansevieria 49-3
Average Height of 10 plants per plot

Boynton, Fla.
2 Jan. 51

Treat.	Blk. A	Blk. B	Average
0-0-0	16.1	15.0	15.6
0-0-1	18.5	17.7	18.1
0-0-2	16.4	18.5	17.4
0-1-0	18.2	16.8	17.5
0-1-1	17.4	17.6	17.5
0-1-2	18.6	16.7	17.6
0-2-0	17.1	19.6	18.4
0-2-1	16.9	20.6	18.8
0-2-2	14.0	20.5	17.3
1-0-0	21.9	16.5	19.2
1-0-1	15.5	24.8	20.1
1-0-2	18.9	23.9	21.4
1-1-0	19.5	19.2	19.3
1-1-1	20.5	18.2	19.4
1-1-2	22.0	24.2	23.1
1-2-0	17.9	17.4	17.7
1-2-1	17.2	19.5	18.4
1-2-2	22.4	21.5	22.0
2-0-0	18.8	20.5	19.7
2-0-1	23.1	23.3	23.2
2-0-2	28.0	30.4	29.2
2-1-0	14.9	20.6	17.8
2-1-1	20.4	21.1	20.8
2-1-2	22.6	27.1	24.9
2-2-0	14.6	20.9	17.8
2-2-1	25.0	25.6	25.3
2-2-2	23.4	25.5	24.5

Subblocks	Ave.
A1	18.8
A2	18.2
A3	20.8
B1	20.4
B2	20.4
B3	21.8

	0K	1K	2K	Ave.
N 0	17.1	18.1	17.5	17.6
N 1	18.7	19.3	22.2	20.1
N 2	18.3	23.1	26.2	22.5
Ave.	18.1	20.2	21.9	20.0

	0N	1N	2N	Ave.
P 0	17.0	20.3	24.0	20.4
P 1	17.5	20.6	21.1	19.7
P 2	18.1	19.3	22.5	20.0
Ave.	17.6	20.1	22.5	20.1

	0P	1P	2P	Ave.
K 0	18.1	18.2	17.9	18.1
K 1	20.5	19.2	20.8	20.1
K 2	22.7	21.9	21.2	21.9
Ave.	20.4	19.8	20.0	20.1

Analysis of Variance

Source	DF	SS	MS	F
Total	53	692.7		
Blocks	5	79.6	15.9	4.1**
N	2	223.0	111.5	28.6**
P	2	4.3	2.1	0.5
K	2	132.9	66.4	17.0**
Nx P	4	29.7	7.4	1.9
N x K	4	94.8	23.7	6.1**
P x K	4	11.1	2.8	0.7
Error	30	117.3	3.9	

Data Sheet 2 Sansevieria 49-1 Boynton, Fla.
P, lbs. per acre, in Soil Samples taken Jan. 15, 1951

No.	Treat. N-P-K	Blk. A	Blk. B	Ave.
1.	0-0-0	9	7	8
2.	0-0-1	5	7	6
3.	0-0-2	11	5	8
4.	0-1-0	11	11	11
5.	0-1-1	10	12	11
6.	0-1-2	17	10	13
7.	0-2-0	10	7	9
8.	0-2-1	10	12	11
9.	0-2-2	10	15	12
10.	1-0-0	11	6	9
11.	1-0-1	16	8	12
12.	1-0-2	11	12	11
13.	1-1-0	9	8	9
14.	1-1-1	11	9	10
15.	1-1-2	20	10	15
16.	1-2-0	15	15	15
17.	1-2-1	14	13	14
18.	1-2-2	10	12	11
19.	2-0-0	10	6	8
20.	2-0-1	5	7	6
21.	2-0-2	7	7	7
22.	2-1-0	8	16	12
23.	2-1-1	14	14	14
24.	2-1-2	13	10	12
25.	2-2-0	11	13	12
26.	2-2-1	9	18	13
27	2-2-2	17	18	17
	Average	11	11	11

	OK	1K	2K	Average
ON	9	9	11	10
1N	11	12	12	12
2N	11	11	12	11
Av.	10	11	12	11

	ON	1N	2N	Ave.**
OP	7	11	7	8
1P	12	11	12	12
2P	11	13	14	13
Av.	10	12	11	11

	OP	1P	2P	Average
OK	8	11	12	10
1K	8	12	13	11
2K	9	13	14	12
Av**	8	12	13	11

Subblocks	Average*
A1	14
A2	10
A3	10
B1	9
B2	11
B3	12

* Difference significant at 5 percent point. L.S.D. (19:1) equals 3

** Difference highly significant. L.S.D. (19:1) equals 2; L.S.D. (99:1) equals 3

Data Sheet 3 Sansevieria 49-3 Boynton, Fla.
K, lbs. per acre, in soil samples, 1/15/51

No.	Treat., N-P-K	Blk. A	Blk. B	Ave.
1.	0-0-0	13	4	8
2.	0-0-1	22	11	16
3.	0-0-2	16	9	13
4.	0-1-0	9	6	8
5.	0-1-1	11	11	11
6.	0-1-2	23	20	21
7.	0-2-0	14	4	9
8.	0-2-1	9	11	10
9.	0-2-2	17	11	14
10.	1-0-0	8	4	6
11.	1-0-1	11	9	10
12.	1-0-2	28	16	22
13.	1-1-0	9	4	7
14.	1-1-1	8	8	8
15.	1-1-2	9	13	11
16.	1-2-0	12	4	8
17.	1-2-1	12	8	10
18.	1-2-2	28	9	18
19.	2-0-0	8	4	6
20.	2-0-1	10	8	9
21.	2-0-2	14	9	12
22.	2-1-0	6	6	6
23.	2-1-1	11	13	12
24.	2-1-2	12	14	13
25.	2-2-0	14	6	10
26.	2-2-1	7	11	9
27.	2-2-2	19	11	15
	Average	13	9	11

	OK	1K	2K	Average
ON	8	12	16	12
1N	7	9	17	11
2N	7	10	13	10
Ave.**	7	11	15	11

	ON	1N	2N	Average
OP	12	13	9	11
1P	13	9	10	11
2P	11	12	11	11
Av.	12	11	10	11

	OP	1P	2P	Average**
OK	7	7	9	7
1K	12	10	10	11
2K	15	15	16	15
Av.	11	11	11	11

Subblocks	Average**
A1	12
A 2	14
A3	14
B1	8
B2	10
B3	9

* Diff. signif. at 5% point. L.S.D. (19:1) equals 4

** Diff. highly signif. L.S.D. (19:1) equals 3; L.S.D. (99:1) equals 4

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Data Sheet 4 Sansevieria 41-3 Boynton, Jan. 3, 41
Tests for P on fresh tissue samples, % P on oven dry tissue

No.	Treat., N-P-K	Blk. A	Blk. B	Ave.
1.	0-0-0	0.496	0.693	0.595
2.	0-0-1	0.291	0.520	0.405
3.	0-0-2	0.455	0.448	0.452
4.	0-1-0	0.445	0.558	0.501
5.	0-1-1	0.401	0.570	0.486
6.	0-1-2	0.557	0.471	0.514
7.	0-2-0	0.440	0.445	0.442
8.	0-2-1	0.589	0.367	0.478
9.	0-2-2	0.365	0.652	0.509
10.	1-0-0	0.336	0.380	0.358
11.	1-0-1	0.344	0.347	0.345
12.	1-0-2	0.350	0.363	0.357
13.	1-1-0	0.427	0.516	0.571
14.	1-1-1	0.440	0.361	0.401
15.	1-1-2	0.420	0.339	0.380
16.	1-2-0	0.462	0.576	0.519
17.	1-2-1	0.395	0.288	0.342
18.	1-2-2	0.432	0.342	0.387
19.	2-0-0	0.396	0.458	0.427
20.	2-0-1	0.232	0.280	0.256
21.	2-0-2	0.286	0.288	0.287
22.	2-1-0	0.463	0.508	0.485
23.	2-1-1	0.397	0.366	0.382
24.	2-1-2	0.439	0.248	0.343
25.	2-2-0	0.511	0.472	0.492
26.	2-2-1	0.371	0.541	0.456
27.	2-2-2	0.485	0.405	0.445
	Average	0.416	0.437	0.426

	0P	1P	2P	Average**
0N	0.434	0.500	0.476	[illegible]
1N	0.353	0.417	0.416	0.395
2N	0.232	0.404	0.464	0.397
Av.*	0.387	0.440	0.452	0.426

	0K	1K	2K	Average*
0P	0.460	0.336	0.365	0.387
1P	0.486	0.423	0.412	0.440
2P	0.484	0.425	0.417	0.452
Av.**	0.477	0.394	0.408	0.426

	0N	1N	2N	Average
0K	0.513	0.449	0.468	[illegible]
1K	0.456	0.363	0.364	0.394
2K	0.491	0.374	0.359	0.408
Av.**	0.487	0.395	0.397	0.426

Subblocks	Average***
A1	0.44[illegible]
A2	0.402
A3	0.403
B1	0.38[illegible]
B2	0.426
B3	0.502

* Diff. Signif. at 5% point. L.S.D. (19:1) equals 0.052

** Diff. highly signif. L.S.D. (19:1) equals 0.052; L.S.D. (99:1) equals 0.070

*** Diff. signif. at 5% point. L. S. D. (19:1) equals 0.074

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Data Sheet 5 Sansevieria 49-3 Boynton, Fla.
% K of oven dry tissue 1/3/51

No.	Treat. N-P-K	Blk. A	Blk. B	Ave.
1.	0-0-0	0.11	0.18	0.15
2.	0-0-1	0.87	1.50	1.18
3.	0-0-2	3.41	1.97	2.69
4.	0-1-0	0.36	0.43	0.39
5.	0-1-1	2.11	1.68	1.89
6.	0-1-2	2.21	2.08	2.15
7.	0-2-0	0.99	0.32	0.66
8.	0-2-1	1.55	1.00	1.28
9.	0-2-2	2.12	1.92	2.02
10.	1-0-0	0.12	0.18	0.15
11.	1-0-1	0.89	1.13	1.01
12.	1-0-2	1.52	1.67	1.59
13.	1-1-0	0.27	0.17	0.22
14.	1-1-1	0.75	0.89	0.82
15.	1-1-2	1.47	1.77	1.62
16.	1-2-0	1.03	0.16	0.59
17.	1-2-1	0.56	0.42	0.49
18.	1-2-2	1.22	1.29	1.26
19.	2-0-0	0.14	0.18	0.16
20.	2-0-1	0.66	0.49	0.58
21.	2-0-2	0.82	0.88	0.85
22.	2-1-0	0.17	0.34	0.25
23.	2-1-1	0.68	0.70	0.69
24.	2-1-2	0.70	1.21	0.96
25.	2-2-0	0.22	0.25	0.23
26.	2-2-1	0.56	0.30	0.43
27.	2-2-2	0.88	0.99	0.94
	Average	0.98	0.89	0.93

	OP	1P	2P	Average
ON	1.34	1.48	1.32	1.38
1N	0.92	0.89	0.78	0.86
2N	0.53	0.63	0.53	0.56
Av.	0.93	1.00	0.88	0.93

	OK	1K	2K	Average
OP	0.15	0.92	1.71	0.93
1P	0.29	1.14	1.57	1.00
2P	0.50	0.73	1.40	0.88
Av.	0.31	0.93	1.56	0.93

	ON	1N	2N	Average
OK	0.40	0.32	0.22	0.31
1K	1.45	0.77	0.57	0.93
2K	2.29	1.49	0.91	1.56
Av.	1.38	0.86	0.56	0.93

Subblocks	Average
A1	1.16
A2	0.92
A3	0.86
B1	0.86
B2	0.89
B3	0.93

Differences between K treat. aver. highly signif. L.S.D. (19-1) = 0.21;
(99-1) = 0.28

Differences between N treat. aver. highly signif. L.S.D. (19-1) = 0.21;
(99-1) = 0.28

K x N interactions highly signif. L.S.D. (19-1) = 0.36; (99-1) = 0.48

Date Sheet 6 Sensevieria 49-3 Boynton, Fla.
Average injury of leaf tip 2 Jan. 51

Treat.	Blk. A	Blk. B	Ave.
0-0-0	11.6	8.7	10.2
0-0-1	11.6	9.5	10.6
0-0-2	8.6	3.8	6.2
0-1-0	13.4	11.3	12.4
0-1-1	10.6	11.2	10.9
0-1-2	10.9	9.8	10.4
0-2-0	11.5	5.7	8.6
0-2-1	11.0	13.9	12.5
0-2-2	8.9	13.6	11.3
1-0-0	12.2	9.3	10.8
1-0-1	10.3	3.2	6.8
1-0-2	10.8	6.6	8.7
1-1-0	12.7	2.7	7.7
1-1-1	11.4	10.9	11.5
1-1-2	10.6	4.0	7.3
1-2-0	12.4	9.5	11.0
1-2-1	11.2	8.5	9.9
1-2-2	7.8	8.3	8.1
2-0-0	8.5	3.8	6.2
2-0-1	12.0	9.5	10.8
2-0-2	4.3	0.9	2.6
2-1-0	9.8	9.5	9.7
2-1-1	10.4	7.1	8.8
2-1-2	7.0	1.1	4.1
2-2-0	11.0	12.4	11.7
2-2-1	4.5	1.0	2.8
2-2-2	3.2	6.3	4.8

	OP	1P	2P	Average
NO	8.9	11.2	10.8	10.3
N1	8.7	8.7	9.6	9.0
N2	6.5	7.5	6.4	6.8
Av.	8.1	9.1	8.9	8.7

	OK	1K	2K	Average
PO	9.0	9.4	5.8	8.1
P1	9.9	10.3	7.2	9.1
P2	10.4	8.4	8.0	8.9
Av.	9.8	9.3	7.0	8.7

	ON	1N	2N	Average
KO	10.4	9.8	9.2	9.8
K1	11.3	9.2	7.4	9.3
K2	9.3	8.0	3.8	7.0
Av.	10.3	9.0	6.8	8.7

Subblocks	Average
A1	9.8
A2	10.6
A3	9.3
B1	8.9
B2	6.7
B3	6.8

Analysis of Variance

Source	DF	SS	MS	F
Total	53	640.8		
Blocks	5	117.8	23.6	2.8*
N	2	114.0	57.0	6.8**
K	2	78.3	39.6	4.7*
P	2	11.6	5.8	0.7
NK	4	34.0	8.5	1.0
NP	4	12.7	3.2	0.4
PK	4	20.1	5.0	0.6
Error	30	252.3	8.4	

Project 5-G-C Sansevieria 49-3 Boynton

Abstract of Results of 1951 Harvest, Data Sheets 7-12
by E. O. Gangstad, J. F. Joyner and C. C. Seale

Leaves frozen in 1950 winter season were found to have the same average height in 1951 as in 1950 (Data sheet 7), indicating no growth for the season. Although one might expect the leaves to continue growth in the basal region of elongation (observed by curvature in hormone weed control treatments) it appears that the hormones of growth produced in the tips (observed by rapid rooting of the tip sections as compared to base sections) are not elaborated when the tip is injured by cold. New growth comes from the young developing shoots.

The height of unfrozen leaves increased according to the fertility treatments (Data sheet 8). The effects of N, K and NK were highly significant. While the 2-0-2 treatments had the tallest growth, the 2-1-2 treatments gave the greatest net increase over last year.

The number of leaves per square foot (Data sheet 9) was significantly increased by the level of nitrogen. Although the effects of P and K alone were not significant, the PK effect was significant and the NK effect was nearly significant.

This experiment was planted by mechanical means at a rate of about 25,000 plants per acre or approximately 1 plant per 2 square feet. During the first year the plants filled in the row. During the second year, the space between the rows was reduced about 1/2. During the third year, the area was fairly well covered with plants.

The total yield of green weight per acre (Data sheet 10) was significantly increased by the level of nitrogen and the level of potassium. The yield is approximately that of the first year, since this is the first year the area between the rows was filled in with plants. The 2-0-2 treatment gave the highest yield. Phosphate did not significantly affect the yield of green weight

The percent fiber (Data sheet 11) was significantly increased by nitrogen and potassium fertilization. The first level of application gave a greater increase than the second level. It is probable that the level of nitrogen could be considerably increased before showing a decrease in percent of fiber on these soils.

The percent fiber is positively correlated with resistance to frost injury but in the frost injury data, the second levels of application were more effective than the first level.

Data Sheet 7 Sansevieria 49-3 Boynton, Fla.

In. Av. Ht. of frozen leaves, observations 2 Jan. 51 and 13 Nov. 51

	A Block		B Block	
Treat.	50	51	50	51
0-0-0	5	6	6	5
0-0-1	7	6	6	6
0-0-2	6	8	16	6
0-1-0	5	6	6	6
0-1-1	7	6	6	6
0-1-2	8	6	7	6
0-2-0	6	6	5	4
0-2-1	6	7	8	5
0-2-2	5	6	7	8
1-0-0	10	7	6	6
1-0-1	5	8	22	20
1-0-2	8	8	7	7
1-1-0	7	7	17	6
1-1-1	9	12	7	9
1-1-2	10	14	20	9
1-2-0	6	15	8	5
1-2-1	6	7	11	6
1-2-2	15	13	13	20
2-0-0	10	9	17	10
2-0-1	11	9	13	21
2-0-2	24	22	29	24
2-1-0	5	5	11	7
2-1-1	10	15	14	7
2-1-2	16	10	26	24
2-2-0	5	5	8	8
2-2-1	20	21	25	21
2-2-2	20	15	20	21
	255	258	340	283
	340	283		
Years	595	541		1136

Treatment Totals

	0K	1K	2K	Tot.
N0	66	76	90	232
N1	100	122	144	366
N2	100	187	251	538
	266	385	485	1136

	0N	1N	2N	
P0	84	75	73	232
P1	114	127	125	366
P2	199	150	189	538

	0P	1P	2P	
K0	97	88	81	266
K1	134	108	143	385
K2	166	156	163	485

Analysis of Variance

Source	DF	SS	MS	F
Total	107	3997		
Whole Plots	53	3550	67	
Blocks	5	350	70	3.2*
N	2	1307	653	29.7**
P	2	31	15	0.7
K	2	668	334	15.2**
NP	4	95	23	1.0
NK	4	396	99	4.5**
PK	4	39	9	0.4
Error	30	664	22	
Years	1	27	27	3.3
Within Yr.	53	420	8	

Data Sheet 8 Sansevieria 49-3 Boynton, Fla.
Inches average height of leaves, observations 2 Jan. 51 (1950) and 13 Nov. 51 (1951)

	A Block		B Block		Total
Treat.	50	51	50	51	50-51
0-0-0	16	15	16	10	57
0-0-1	19	16	18	14	67
0-0-2	16	17	17	18	68
0-1-0	18	14	17	13	62
0-1-1	17	15	18	16	66
0-1-2	19	16	17	15	67
0-2-0	17	14	20	14	65
0-2-1	17	18	21	14	70
0-2-2	14	15	21	17	67
1-0-0	22	22	17	19	80
1-0-1	16	22	25	23	86
1-0-2	19	19	24	24	86
1-1-0	20	15	19	25	79
1-1-1	21	29	18	23	91
1-1-2	22	23	24	25	94
1-2-0	18	21	17	13	69
1-2-1	17	19	20	20	76
1-2-2	22	20	22	24	88
2-0-0	19	18	21	16	74
2-0-1	23	28	23	28	102
2-0-2	28	35	30	36	129
2-1-0	15	19	21	19	74
2-1-1	20	27	21	23	91
2-1-2	23	34	27	36	120
2-2-0	15	16	21	21	73
2-2-1	25	33	26	31	115
2-2-2	23	28	26	34	111
	521	568	567	571	2227

		Total		
	KO	K1	K2	
NO	184	203	202	589
N1	228	253	268	749
N2	221	308	360	889
	633	764	830	2227

	NO	N1	N2	
PO	192	252	305	749
P1	195	264	285	744
P2	202	253	299	734
	589	749	889	2227

	PO	P1	P2	
KO	211	215	207	633
K1	255	248	261	764
K2	283	281	266	830
	749	744	734	2227

Analysis of Variance

Source	DF	SS	V	F
Total	107	3,127		
Within years	54	538	10.0	1.09
N	2	1,251	625.5	68.74**
P	2	3	1.5	0.16
K	2	558	240.0	26.37**
NP	4	60	15.0	2.50
NK	4	355	88.7	9.74**
PK	4	21	5.3	0.58
Error	35	341	9.1	

**Highly significant

Data Sheet 9 Sansevieria 49-3 Boynton, Fla.
Leaves per sq. ft. 13 Nov. 51

Treat.	A	B	Tot.
0-0-0	17	17	34
0-0-1	20	17	37
0-0-2	18	21	39
0-1-0	13	17	30
0-1-1	18	21	39
0-1-2	12	20	32
0-2-0	14	20	34
0-2-1	16	23	39
0-2-2	17	31	48
1-0-0	23	21	44
1-0-1	17	27	44
1-0-2	28	28	56
1-1-0	21	33	54
1-1-1	27	24	51
1-1-2	28	27	55
1-2-0	24	22	46
1-2-1	26	33	59
1-2-2	29	29	58
2-0-0	25	25	50
2-0-1	26	28	54
2-0-2	25	31	56
2-1-0	23	31	54
2-1-1	30	31	61
2-1-2	35	29	64
2-2-0	32	21	53
2-2-1	26	35	61
2-2-2	35	26	61
	625	688	1313

Treatment Totals

	KO	1	2	Tot.
NO	98	115	119	332
1	144	154	169	467
2	157	176	181	514
	399	445	469	

	PO	1	2	Tot.
NO	110	101	121	332
1	144	160	163	467
2	160	179	175	514
	414	440	459	

	PO	1	2	Tot.
KO	128	138	133	399
1	135	151	159	445
2	151	151	167	469
	414	440	459	

Analysis of Variance

Source	DF	SS	V	F
Total	53	1896		
Blocks	5	148	30	2.50
N	2	992	496	41.33**
P	2	57	29	2.42
K	2	29	15	1.25
NP	4	45	11	0.92
NK	4	119	30	2.50
PK	4	148	37	3.08*
Error	30	358	12	

**Highly significant; *significant

Data Sheet 10 Sansevieria 49-3 Boynton
Percent yield of fiber 13 Nov. 51 Harvest with Gravelley mower

Treat.	A	B	Tot.
0-0-0	0.62	0.98	1.60
0-0-1	1.03	0.81	1.84
0-0-2	0.83	1.22	2.05
0-1-0	1.24	1.02	2.26
0-1-1	1.01	1.00	2.01
0-1-2	1.00	1.00	2.00
0-2-0	0.83	1.02	1.85
0-2-1	0.96	1.20	2.16
0-2-2	0.84	0.94	1.78
1-0-0	1.42	1.03	2.45
1-0-1	1.19	1.57	2.76
1-0-2	1.11	1.52	2.63
1-1-0	1.14	1.59	2.73
1-1-1	1.96	1.65	3.61
1-1-2	1.54	1.69	3.23
1-2-0	1.49	0.81	2.30
1-2-1	1.14	1.34	2.48
1-2-2	1.40	1.55	2.95
2-0-0	1.02	1.29	2.31
2-0-1	1.67	1.23	2.90
2-0-2	1.99	1.27	3.26
2-1-0	1.10	0.86	1.96
2-1-1	1.64	1.68	3.32
2-1-2	1.86	1.76	3.62
2-2-0	1.04	1.46	2.50
2-2-1	1.71	2.15	3.86
2-2-2	1.50	1.65	3.15

	K0	K1	K2	
N0	571	601	578	1750
N1	748	885	881	2514
N2	677	1008	1003	2688
	1996	2494	2462	6952

	N0	N1	N2	
P0	544	784	847	2175
P1	627	957	890	2474
P2	579	773	951	2303
	1750	2514	2688	6952

	P0	P1	P2	
K0	636	695	665	1196
K1	750	894	850	2494
K2	789	885	788	2462
	2175	2474	2303	6952

Frozen Leaves			Difference	
2-0-2	1.11	1.60	0.16	.39
2-2-1	1.50	1.47	.21	.68

Analysis of Variance

Source	DF	SS	V	F
Total	53	66,533		
Rep.	1	141	141	0.25
N	2	27,669	13,834	24.97**
P	2	2,505	1,253	2.26
K	2	8,638	4,319	7.80**
NP	4	2,534	634	1.14
NK	4	5,559	1,390	2.50
PK	4	635	159	0.29
Error	34	18,852	554	

**Highly significant

Data Sheet 10 Sansevieria 49-3 Boynton, Fla.
1000#/a yield of total green weight 13 Nov. 51

Treat.	A	B	Tot.	Plus 20"
000	16	9	25	--
001	14	18	32	--
002	18	35	53	--
010	15	8	23	--
011	11	15	26	--
021	31	12	43	--
022	9	18	27	--
100	29	25	54	--
101	34	72	106	26
102	21	45	66	--
110	12	35	47	--
111	52	35	87	18
112	51	63	114	37
120	26	16	42	--
121	15	33	48	--
122	19	47	66	15
200	27	36	63	10
201	30	66	96	39
202	89	107	196	102
210	18	23	41	--
211	58	49	107	18
212	75	107	182	80
220	12	36	48	--
222	72	71	143	62
	851	1132	1983	

	KO	1	2	Tot.
NO	84	101	139	324
N1	143	241	246	630
N2	153	356	521	1029
Tot.	379	698	906	1983

	NO	1	2	Tot.
PO	110	226	355	691
P1	108	248	330	686
P2	106	156	344	606
Tot.	324	630	1029	1983

	PO	1	2	Tot.
KO	142	111	126	379
K1	234	220	244	698
K2	315	355	236	906
	691	686	606	1983

Analysis of Variance

Source	DF	SS	V	F
Total	53	36,795		
Blocks	5	3,120	624	3.51
N	2	13,837	6,943	39.00**
P	2	252	126	0.71
K	2	7,829	3,914	21.99**
NK	4	4,703	1,175	6.60**
NP	4	564	141	0.79
PK	4	1,098	274	1.54
Error	30	5,342	178	

**Highly significant; *significant; yield of leaves plus 20" not analyzed.

Data Sheet 12 Sansevieria 49-3 Boynton

Total yield of fiber, # per acre, 1951 harvest, 13 Nov. 51

Treat.	Blk. A	Blk. B	Total
0-0-0	99	88	187
0-0-1	144	145	289
0-0-2	158	392	550
0-1-0	186	82	268
0-1-1	111	150	261
0-1-2	400	190	590
0-2-0	75	275	350
0-2-1	298	144	442
0-2-2	76	169	245
1-0-0	412	257	669
1-0-1	405	1130	1535
1-0-2	233	684	917
1-1-0	137	557	694
1-1-1	1019	578	1597
1-1-2	785	1065	1850
1-2-0	387	130	517
1-2-1	171	442	613
1-2-2	266	729	995
2-0-0	275	464	739
2-0-1	501	812	1313
2-0-2	1771	1359	3130
2-1-0	198	198	396
2-1-1	951	823	1774
2-1-2	1395	1883	3278
2-2-0	1248	526	1774
2-2-1	821	2258	3079
2-2-2	2250	1172	3422

	NO	N1	N2
KO	805	1,880	2,909
K1	992	3,745	6,166
K2	1385	3,762	9,830
	3182	9,387	18,905

	PO	P1	P2
NO	1026	1,119	1,037
N1	3121	4,141	2,125
N2	5182	5,448	8,275
	9329	10,708	11,437

	KO	K1	K2
PO	1595	3,137	4,597
P1	1358	3,632	5,718
P2	2641	4,134	4,662
	5594	10,903	14,977

Analysis of Variance

Source	DF	SS	V	F
Total	53	16,378,079		
Reps.	1	63,354	63,354	0.68
N	2	6,968,650	3,493,250	37.72**
P	2	127,347	63,674	0.69
K	2	2,459,697	1,229,848	13.28**
NK	4	1,955,827	488,957	5.28**
NP	4	1,191,625	297,906	3.22*
PK	4	242,843	60,711	0.61
Error	34	3,368,736	99,080	

Yield of Fiber, # per Acre, leaves over 20 inches long

	K1PO	K2PO	K1P1	K2P1	K1P2	K2P2
N1	179	-	289	129	-	117
N2	290	831	149	724	637	486

**Highly significant

*Significant

Outline Sansevieria 49-4 Boynton

1. Expt.: Nursery planting of leaf cuttings

2. Location: Winchester Farm, Boynton

3. Soil: Leon fine sand

4. Variety: Leaf cuttings of S. trifasciata 2½ years old

5. Treatment: a) 1 year after plantings

   b) 2 years after plantings

6. Design: Field planting (a) 1/3 acre July 1949 and (b) 1/3 acre Dec. 1949. Leaves cut 6-8 inches and planted mechanically, set in 21 inch rows, 6-8 inches apart in the row.

7. Abstract of Results: About 500# green leaf material or 1500# per acre were required for planting at this rate - approximately 40,000 cuttings per acre. One year after planting plot a, sufficient plants were obtained to plant approximately 1 acre at a rate of 25,000 plants per acre. Two years after planting plot b, sufficient plants were obtained to plant about 4 acres. Plants obtained in the second year tended to be somewhat large for transplanting. Under these rates and conditions, one acre of nursery will plant approximately 5 acres of field per annum.

Outline Sansevieria 49-5 Boynton

1. **Expt.:** Labor hours for hand weeding

2. **Location:** Winchester Farm, Boynton

3. **Soil:** Leon fine sand

4. **Variety:** S. trifasciata

5. **Treatment:** Hand weeding, hours per month

6. **Design:** Field planting, 1/2 acre plot

7. **Abstract of Results:** The man hours required for weeding 1/2 acre sansevieria in the 1949 season was 721 or 1442 hours per acre per year. At $.55 per hour, the total cost was $793.10 per acre.

8. **Data:** Jan. - Dec. 1949

	Hrs./acre	Dollars/acre
January	70	38.50
February	72	39.60
March	36	19.80
April	72	39.60
May	188	103.40
June	162	89.10
July	68	37.40
August	108	59.40
September	252	138.60
October	180	99.00
November	226	124.30
December	8	4.40
Total	1442	793.10

Outline Sansevieria 50-4 Belle Glade

Object: To review the early nomenclature, description and classification of sansevieria species so that proper descriptions might be applied in the breeding program.

Abstract of Results: The presently accepted nomenclature and description of sansevieria by Thunberg is derived from Petagna, Institutions Botanicae, V. 3, p. 643, 1887, cite as Commelyn 1701, *aloe guineensis* and Linnaei, 1753.

The specific name thyrsiflora refers to a seed-bearing plant with globose red berries, a yellow colored rootstock and a light green leaf. There are many types of sansevieria that could meet this description. The plant commonly referred to as *S. guineensis here* is non-seed bearing and has a red rootstock. It more nearly fits the description of *S. metallica* Brown. Gerome and Labroy indicate *S. metallica* is a variety of *S. guineensis*, but Brown (1913) maintains *S. metallica* as a separate species though he cites the synonomy of *S. guineensis* and *S. thyrsiflora* from Wildenow.

The generic descriptions of sansevieria as given by Thunberg has been maintained for a period of time in the botanical literature. It was originally based on two descriptions, *S. thyrsiflora* and *S. aethiopica* cited from Linnaei 1753, 1764. *S. aethiopica* is not maintained by Brown (1913). The generic description of sansevieria, Thunberg, refers to a single species, thyrsiflora.

The present systems of classification are rather indefinite, having been devised in 1915 at a time when the taxonomic position and the relationship of species was not well understood. There is need to use presently available methods of cytology and plant breeding to identify and relate different species.

Data Sheet 1 Sansevieria 50-4 Belle Glade, Fla.

Review of Early Taxonomic Nomenclature of Sansevieria

(1) Linnaei, Caroli. Species Plantarum. Tomus 1, p. 321. 1753.

HEXANDRIA MONOGYNIA

ALOE hyacinthoides: floribus sessilibus horizontalibus infundibuliformibus acqualibus planis limbo revolutis.

ALOE foliis lanceolatis planis rectis radicatis. Hort. cliff. 32. Hort. ups. 85. Fl. zeyl. 130. Roy. lugdb. 24.

Variety zeylanica: Aloe zeylanica pumila, foliis variegatis. Comm. Hort. 2, p. 41. t. 21. (1701) Pluk. alm. 19. t. 256. f. 5 (1696)

Variety guineensis: Aloe guineensis, radice geniculata, foliis e virdi et atro undulatim variegatis, Comm. hort. 2, p. 39. t. 20. prel. 84. t. 23 (1701)

Linnaeus described sansevieria under the aloe in 1753 as *Aloe hyacinthoides*. He recognized two varieties, earlier described by Commelyn from plants growing in the Royal Dutch Gardens of Amsterdam, as zeylanica and guineensis.

(2) Adanson, Michel. Fam. des Plantes. V. 2, pp. 54 and 543. 1763.

HEXANDRIA MONOGYNIA

Cordyline guineensis. Aloe hyacinthoides, Linne. Caroli. Sp. Plant. p. 321. 1753.

Adanson placed the variety guineensis under a new genera, Cordyline, in 1763.

(3) Linnaei, Caroli. Genera Plantarum. P. 456. 1764.

HEXANDRIA MONOGYNIA

ALETRIS. p. 428

Cor. infundibuliformis
Stamina inferta laciniarum basi
Caps. 3-locularis.

Data Sheet 1   Sansevieria 50-4 (Cont.)

Hyacinthoides. p. 456.
Aloe acaulis, foliis lanceolatis carnosis, floribus geminatis.

Variety zeylanica: Aloe zeylanica pumila, foliis variegatis.
Comm. hort. 2, p. 41. t. 21 (1701). Ceylon aloe. Native of
Ceylon.

Variety guineensis: Aloe guineensis, radice geniculata, foliis e
virdi et atro undulatim variegatis.
Comm. hort. 2, p. 39. t. 20 (1701). Guinea aloe. Native of
Guinea. Fl. June-November.

In 1764 Linnaeus placed the sansevieria under Aletris. The original descriptions were retained. The genus Cordyline, described by Adanson in 1763 was not recognized.

(4) Medic. Theod. Speciosa. p. 76. 1786.

Class VI HEXANDRIA MONOGYNIA
Aloe Familie

IV. Acyntha

16. ACYNTHA GUINEENSIS.
Aloe hyacynthoides. L. variet. bets. Syft. Pl. Edit. 1
Aloe guineensis. Jacq. Enum. Ftirp. Vindeb. p. 308
Alethris hyacinthoides. L. variet. beta
Alethris guineensis. Jacq. H. Vindeb. Vol. 1, p. 36, tab. 84

Medicus removed Sansevieria guineensis from Alethris to set up a new genus Acyntha, but left S. zeylanica under Alethris.

(5) Petagna, Instituiones Botanicae, V. 3, p. 643. 1787.

HEXANDRIA MONOGYNIA
Alet. hyacinthoides acaulis-----
a. zeylanica
b. guineensis

SANSEVIERIA thyrsiflora nobis.
Aletris hyacinthoides guineensis. Lin. Sp. Pl. 456 (1764).
Aloe guineensis... Comm. hort. 2, p. 39. t. 20 (1701).

Petagna in 1787 set up the genus sansevieria after the naturalist Sanseverini and gave the specific name thyrsiflora to the plant described by Commalineus. For unknown reasons, he left the variety zeylanica under the genus Aletris.

Data Sheet 1 Sansevieria 50-4 (Cont.)

(6) Cavanilles, A. J. Iconeis et descriptiones plantarum Vol. iii, p.24 t. 246. 1794.

HEXANDRIA MONOGYNIA

SALMIA
......generic description

Salmia spicata
S. guineensis. Jacq. hort. Vind. Vol. 3, tab. 84.
S. ebracteata. Katu-Kapel Hort. Malav. V. II, tab. 42.

Cavanilles in 1794 described the sansevieria under a new genus, Salmia.

(7) Thunberg, K. P. Prodr. Pl. Cap. p. 65. 1794.

HEXANDRIA MONOGYNIA

SANSEVIERIA.

Cor. 6-fida : lacinis erectis

Germen superum

Bacca

S. thyrsiflora. acaulis foliis lanceolatis carnosis, floribus geminatis. *Alethris hyacinthoides guineensis* Linn.

S. aethiopica. acaulis foliis linguaeformibus convolutis, racemo oblango, floribus erectis.
Alethris hyacinthoides ceilanica Linn.

Thunberg, the present authority for the description of sansevieria, did not recognize earlier descriptions cited from Petagna.

Data Sheet 2 Sansevieria 50-4 Belle Glade
Generic Descriptions of Sansevieria

(1) Comm. Hort. 2, p39, t. 20 (1701)

Chapter XX*

Aloe of Guinea with knotted root and leaves variegated with green and black in a wavy fashion.

This aloe is nourished by a long thick unequal root with many knots, growing transversely or obliquely barely under the ground, which inside is white and sweetish and is covered by a thin yellow bark, from the lower part of the root itself are borne whitish fibers.

The leaves arise from the very root, in the beginning twisted around like papery hoods; these when unfolded are a foot or a foot and one half long, 3 inches wide, and running out into an unarmed point, and on both sides colored in a wavy fashion with bright green and blackish green; the margin is reddish and they have a salty sap.

Although up to now it has not flowered or set seed in the medical garden or in any garden in Holland, it is, however, propagated very easily by the creeping root itself.

The flowers of this plant (as the learned botanist Francois Kiggelaar has informed me by letter) are numerous and hang in a spike on a scape that is straight, round, and 2 feet high, they are reddish and very similar to the flowers of Apocynum americanum foliis androsaemi major, etc. (Apocynum androsaemifolium).

It is called Anonymos guineensis aloes foliis geminatis e viridi et atro undulatim variegatis, floribus rubicundis Apocyni floribus liliii convallium dotarti simillibus in the catalog of the Beaumond garden.

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*Translation by Dr. S. F. Blake, Division of Plant Exploration and Introduction, 27 Feb. 52.

Data Sheet 2 (Cont.) Sansevieria 50-4 Belle Glade

(2) Medic. Theod. Speciosa p. 76. 1786

Class VI HEXANDRIA MONOGYNIA

IV. Acyntha

Blume, uten wo sie de den Fruchtknoten einschlieszt, bauchigt, darauf rohricht, denn abermahis erweitert, und in sechs lange schmahle Einschnitte zertheilt. Sechs Staubsaden an der ganzen Erweiterung der obern Blumen Halbscheid befestiget. Fruchtknoten mit drei Sastgruben, einem langen uber die Blume weit hervorragenden Griffel. Frucht eine saftige Beere, mit einzigen Saamen.

16. ACYNTHA GUINEENSIS
    Aloe hyacynthoides. L. variet. beta. Syft. Pl. Edit. 1
    Aloe guineensis. Jacq. Enum. Ftirp. Vindeb. p. 308
    Alethris hyacinthoides. L. variet. beta
    Alethris guineensis. Jacq. H. Vindeb. Vol. 1. p. 36. tabl.84

Ungeacht diese Bluthe nichts weniger als selten is, so haben doch die Serualisten sie immer miszkannt, und Limme brachete sie anfanglich nack dem Beispiele seiner vorganger zu dem Aloe Geschlechte, wohin sie zwar nach ihrem Familien Habitus, aber sicher niemals nach den Bluthen Theilen gehort hat. Aber da er nun die Aloe seiner Vorganger in mehrere kunstliche Geschlechter ab theilte: so war es entweder Fehler, diese kunstliche Genera su bilden, oder ein noch grossere, diese Pflanze in ein ganz falsches Geschlecht zu brimgen. Es ist also wahres Bedurfnisz, diesem Yrthume durch Errichtung eines neuen Geschlechtes einmal absuhelfen, als weches sowohl die Bluthe als die Beere befiehlt.

Medicus removed Sansevieria guineensis from Alethris to set up a new genus Acyntha, but left S. zeylanica under Alethris.

Data Sheet 2 (Cont.) Sansevieria 50-4 Belle Glade

(3) Petagna, Institiones Botanicae V. 3 1787

p.642

2. Alet. hyacinthoides. Stemless, leaves lanceolate fleshy, flowers paired. Lin. sp. pl. 456. Mant. 367.

zeylanica. Some of the leaves subulate, compressed. Aloe zeylanica. Jacqu. vind. 310 ex Murr.

guineensis. Leaves all lanceolate. Jacqu. hort. v. 1. t. 84. Aloe guineensis. Jacqu. vind. 308. Should be separated from this genus for the fruit is a berry. Murr. in Syst. Veg. 14. p. 337. Actually this plant which flowers and sets its berries some years in the garden of Count de Claromont constituted a new genus. Hence I should impose on the genus the name Sanseverinia to keep in perpetual memory that very noble man Peter Sanseverini, who first among us founded a garden adorned with the rarest exotic plants, and whose botanical merits were high, as (is evident) from the remains of plants which by the care of his excellent wife are preserved up to now.

3. Alet. fragrans. Caulescent, leaves lanceolate loose. Lin. sp. pl. 456. Jacqu. vind. 309.

p. 643

4. Alet. Uvaria. Stemless, leaves ensiform, channeled, keeled. Lin. Regn. Veg. 277.

Cape of Good Hope. Perennial. Cultivated in the garden of Count de Claromont, flowering every year.

Sanseverinia

Scape bearing flowers in a thyrse. Corolla monopetalous, tubular, inferior; limb 6-fid, the lobes linear, revolute. Stamens fastened at the base of the lobes. Berry globose, on a short peduncle, bearing a bony seed.

Sansev. thyrsiflora. Nobis.
Aletris hyacinthoides guineensis. Lin. sp. pl. 456.
Aloe guineensis, radice geniculata, foliis e viridi et atro undulatim variegatis. Commel. hort. 2. p. 39, t. 21. praelud. 84. t. 33.

In Guinea. Perennial. Cultivated in the garden of His Excellency, Count de Claromont in the suburb la Barra.

Root tuberous, transverse, kneed, outside yellow, inside white, somewhat sweetish. Radical leaves hooded, 9 or 10 from each radical bud, when fully grown a foot or 1 1/2 feet long, 3 inches wide, ovate-lanceolate, concave, acuminate, of varied green color, of a fibrous tenacious pulpy consistency, perennial. Scape arising from the center, cylindric, 1 1/2 feet high and more, bearing a thyrse of flowers; adorned with a few lanceolate scales, which in the floriferous part take the shape of bracts. Flowers white, in fours and fives subtended by a bract, forming a thyrse. Corolla
p. 644
inferior, tubular, half-6-fid, the lobes of the limb linear, revolute. Stamens 6, arising from the base of the lobes, as long as the corolla, white. Anthers incumbent, yellow. Stigma capitate, longer than the stamens. Berry globose, short-pediceled, at maturity yellow; seed bony. Often from the confluence of the flowers, the berries ripen grown together so that 2 or 3 often adhere; nor do all the flowers reach the perfect state.

It flowers outside in June and July. The fruit matures in autumn and often persists on the plant through the winter.. The flowers are ill smelling, somewhat like bitter almond, and stay open from the third hour of the afternoon to the dawn of the following day.

Will botanist see whether Aletris fragrans Linn. belongs to this genus? The figure and description of Commellin so indicate, but in natural history everything should be established not by guesses but by observation.

SALMIA[a]

Calix nullis.
Corolla monopetala, tubulosa, semisexfida, laxiniis linearibus, obtusis, revolutis.
Filamenta sex, linearia, erecta, laciniarum corollae basi inserta; antherae oblongae, versatiles.
Germen superum, ovatum, trisulcatum: stylus filiformis, staminibus paulo longior: stigma peltatum.
Pericarpium: drupae tres, subglobosae, centro coalitae.
Semina solitaria, ossea, ovata.

Obs. Druparum alerta, quandque duae abortum patiantur.

SALMIA SPICATA. Tab. 246.

268. Salmia foliis rigidis, canaliculatis, maculatis: floribus spicatis.
Radix crassa fibrosa, ex qua folia prodeunt pedalia et amplius, lineari-acuta, rigida, canaliculata, maculata, inferiora breviora, scapum amplexantia. Scapus teres foliis subaequalis, floribus tectus, quorum fasciculi ut plurimum quadriflori, ad fasciculi basim squama brevis acuta, inferne latior.
Corollae initio virides, postea pallidae, ac tandem albicantes. Tubus gracilis, teres, semipollicaris: laciniae tubo longiores ut plurimum revolutae.
Staminum filamenta alba: antherae lutescentes.
Germen viride, glabrum: stylus staminibus crassior: stigam breve, pellucidum, peltatum.
Fructus initio viridis, tandem luteus: semen pulpa tectum, quam pellicula ambit.
Habitat........ ..Floret Iulio: fructum praebet Septembri.
Explic. tab. *a* Corolla expansa. *b* Fructus. *c* Semen. *d* Huius sectio.
Obs. Clarissimus Iacquinus in volumine primo horti Vindobonensis plantam dedit tabula 84 huic nostrae similem: notantur tamen in illa quaedam, quae in mea desiderantur: scapus scilicet violaceus punctis albicantibus maculatus: stylus filamentis duplo longior: atque semina mollia. Ad haec, illius fructum esse dixit laudatus auctor baccam mollem subrotundam monospermam, qui in nostra componitur ex tribus drupis, nisi abortum patiatur. Rectius ille mea sententia drupam dixisset; verumtamen res nunc, non voces discutiendae sunt. Vidit occulatissimus Iacquinus suam plantam ab aletri, aloe atque a notis omnibus generibus fructifactione diversam, tunque candore, quo et scientia nemini cedit, plantam a dictis generibus amovendam esse dixit, innominatam relinquens. Venit postea D. de Lamarck qui nauci ducens Iacquini monita atque inventa ad aletrin reduxit plantam reluctante fructu: in quo minime laudandus videtur vir alioquin laude dignissimus et de Botanica benemeritus. Linnaeo erranti condonandum est, quia flores numquam se vidisse dixit de aletri hyacinthoide tractans. Itaque *operae praetium duxi plantam delineare*, eique nomen genericum

A. In honorem Ex. D.D. Caroli de Salm Salm fecit, mihique huius scientiae prima rudimenta S.R.I. Principis, qui in Botanica multum pro- dedit.

HEXANDRIA

SANSEVIERIA

Thunberg, K. P. Prodromus plantarum capensium, quos, in protorio
Bonae Spei Africes......Upsaliae, 1794-1800, pars prior, p. 65.

S. acaulis foliis lanceolatis carnosis, floribus geminatis.
thyrsiflora
Alethris hyacinthoides: guineensis. Linn. System 336.
S. acaulis foliis linguaeformibus convolutis, racemo oblongo,
floribus erectis. aethiopica
Alethris hyacinthoides: ceilanica? Linn. System 336.

ESSENTIAL CHARACTERS OF HEXANDRIA

XXIV. GETHYLLIS. Cor. 6-partita: tubo filiformi.
Germen inferum. Bacca oblonga,
polysperma.
Papiria Act. Ludendens.
Hexandria Monogynia.

XXV. MASSONIA. Cor. 6-petala, nectario inferta.
Nectarium inferum. Caps. 3-locularis,
Hexandria Monogynia.

XXVI. MAUHLIA. Cor. infera, 6-partita: limbo aequali.
Capsul 3-locularis.
Hexandria Monogynia.

XXVII. LANARIA. Cor. 6-partita, lanata.
Stigma trifidum. Capsula 3-locularis.
Hyacinthus lanatus. Linn. Syst. Veg. XIV. p. 336.
Lanaria, Hort. Kevenf. Aiton. P. I. p. 462.
Hexandria Monogynia.

XXVIII. LACHENALIA. Cor. 6-partita: laciniis tribus
ex-terioribus brevioribus.
Germen superum. Caps. 3-locularis.
Phormium. Nov. Plant. Gener. P. 5, p. 93.
Hexandria Monogynia.

XXIX. SANSEVIERIA. Cor. 6-fida: laciniis erectis.
Germen superum. Bacca.
Hexandria Monogynia.

Systematic Classification of Sansevieria Species

(1) Baker, J. G. Sansevieria. Jour of the Linnean Society. p.546-550. Vol XIV. 1875

Tribus II. Sansevierea

4. Sanseviera, Thunb.

Thunb. Nov. Gen. 121; Prodr. Cap. 65; Willd. Sp. Plant. ii. 159; Schult. fil. Syst. vii. 355; Endlich. Gen. no. 1113; Kunth, Enum. v. 16. - Acyntha (Commel.), Medic. Theor. 96. - Salmia, Cav. Ic. iii. t. 246. non aliorum. - Aletris, sp., Linn.

Perianthium albidum gamophyllum tubo cylindrico, segmentis 6 subaequalibus tubo aequilongis vel brevioribus flore expanso patulis. Stamina 6 ad faucem tubi uniseriata inclusa filamentis filiformibus basi applantis antheris oblongis versatilibus introrsum longitudinalitar dehiscentibus. Ovarium parvum sessile ampullaceum triloculare, ovulis in loculis solitariis ascendentibus; stylus gracillimus rectus exsertus; stigma capitatum. Bacca globosa carnosa, seminibus 1-3 magnis triquetris, albumine corneo, testa pallida membranacea. Suffrutices acaules rosulis foliorum cartaliginosorum fibrosorum saepe crassorum ex rhizomate ortis, scapis robustis subnudis, floribus copiose simpliciter racemosis fasciculatis, pedicellis articulatis. Ad Dracaenam nisi habitu arcle accedit. Regiones calidiores veteris orbis saepe in hortis cultae.

Folia oblanceolata cartilaginea medio ½ lin. crassa.

1. S. guineensis.
2. S. thyrsiflora.
3. S. longiflora.
4. S. senegambica.
5. S. nilotica.

Folia subtertia medio 3-6 lin. crassa ensiformia ad apicem longe attenuata:

6. S. zeylanica.
7. S. Roxburghiana.
8. S. lanuginosa.
9. S. Ehrenbergii.

Folia cylindrica basi solum prope scapum leviter excavata.

10. S. cylindrica.

(2) Gerome J. and Labroy, O. Tableau Synoptique des Especes Sansevieria Bull. Mus. D'Hist. Nat. pp. 173. 1903

- I. Plantes Acaules, a Feuilles
  - A. Planes
    - 1. Coriaces, vert clair
      - a. Zebrees
        - i. nettement dresses, rigides, et non bordees de brun
          - (1) tres zebrees; L 1 m., 1 o m. 07............. S. guineensis Willd.
          - (2) a teinte metallique, peu zebrees; L o m. 80, 1 o m. 12............ S. metallica Hort. Buit.
        - ii. retombantes et bordees de brun
          - (1) tres zebrees; L o m. 70, 1 o m. 12............ S. fasciata Cornu.
      - b. non zebrees
        - i. bordees de blanc iviore; L 1 m. et plus; 1 o m. 08 a o m. 10.................. S. liberica
        - ii. non bordees, bien planes en spatule; un peu zebrees a la base et en dehors; L o m 60, 1 o m o5 .. S. Cornui
        - iii. bordees de brun, un peu concaves, L o m. 60, 1 o m. 06.......................... S. thyrsiflora Thunb.
    - 2. charnues vert fonce
      - a. zebrures peu apparentes sur les feuilles agees; bords plus ou moins ondules
        - i. dresses; L 1 m. 20, 1 o m o8.. S. Kirkii Baker
        - ii. plus ou moins penchees
          - (1) base non sillonnee en dessus; L o m. 55, 1 o m. o6................S. longiflora Sims.
          - (2) base portant 2-3 sillons bien marques sur la partie superieure de la gouttiere; L o m. 60, 1 o m. o9................S. Aubrytiana Carr.
  - B. en gouttiere
    - 1. courtes
      - a. striees longitudinalement en dehors; L o m. 40, 1 o m o2........S. zeylanica Willd.

- I. Plantes Acaules, a Feuilles
  - B. en gouttiere
    - 1. courtes
      - b. non striees, de teinte glauque bleuatre sur les feuilles agees, L o m. 35, l o m. 015........................ S. glauca
    - 2. plus longues et plus striees
      - a. a zebrures bien marquees; L o m. 55, l o m. 02 a o m. 025........................ S. Rohburghiana Schultes
      - b. moins nettement zebrees et d'un vert plus fonce; L o m. 70, l o m. 02............ S. grandicuspis Haw.
  - C. cylindriques
    - 1. sauf une petite gouttiere sur la partie superieure
      - a. gouttiere a section demi-circulaire; sillons distants et irreguliers........... S. stuckyi God. Leb.
      - b. gouttiere plus petite, a section anguleuse; sillons etroits, plus marques........... S. sp. (d'Andradae?)
    - 2. entierement cylindriques ou arrondies
      - a. feuilles longues (1 m. 30 a 1 m. 50 et plus) souvent zebrees; sillons peu apparents........... S. cylindrica Boj.
      - b. feuilles courtes (o m. 50 a o m. 70), non zebrees; sillons peu nombreux, bien apparents........... S. Sulcata Boj.
- II. Non Acaules
  - A. a peine caulescentes, feuilles distiques tres rapprochees
    - 1. dos de la feuille presentant une carene nettement marquee par deux sillons profonds places vis-a-vis......................... S. shrenbergi Schw.
    - 2. dos de la feuille ne presentant pas les deux sillons signales ci-dessus. S. zanzibariga
  - A. suffrutescentes, tiges dressees rigides, feuilles espacees alternes suivant le cycle 2/5, engainantes; L o m. 15, l o m 03......... S. arborescens Cornu.

Brown, N. E. Sansevieria. A Monograph of All the Known Species. pp. 189-197. 1915.

I. Stem, 1½-5 ft., or perhaps more, high (unknown in S. bagamoyensis), erect, branching at or near the base and often above the ground, leafy throughout or scaly at the base.
Leaves of adult plants, 7-18 in. long, flattish or concave (perhaps somewhat longitudinally folded in S. bagamoyensis), 1-2 lin. thick at the base:-
Stem in the dried specimens seen less than ½ in. thick; leaves less than 3/4 in. broad.....................................bagamoyensis
Stem 2/3-1 in. thick; leaves 3/4-1-3/4 ins. broad....................................arborescens
Leaves of adult plants 1-2-3/4 ft. long, 3/4-1-1/3 in. broad, concave or channelled down the face, 6-9 lin. thick near the base:-
Leaves with a channel down the face as broad as the leaf, and tapering to a hard pale brown spine-like point; flower-stem branched.................................Powellii
Leaves with a channel down their face much narrower than the leaf, except at the base, and tapering in a cylindric manner to a slender and very acute green or pale brown or whitish point, which at first is slightly horny but not very hard; flower-stem not branched.....................................caulescens
Leaves of adult plants 3-7 ft. long, laterally flattened, 1-1/4 - 1-3/4 in. thick at the base, with a channel as broad as the leaf down the face; flower-stem branched.............................robusta

II. Stem either none or not rising erectly more than about 1 ft. above the ground. Three species produce at 2-4 in. above the ground, ascending or the trailing branches 1/4-3 ft. long, which root and bear a tuft of leaves at their ends, but excluding their trailing length do not rise erectly more than 1 ft. above the ground. (See also 1, S. bagamoyensis, of which the height of the stem is unknown.)

A. Leaves in transverse section at their middle about as thick as, or thicker, than they are broad, cylindric or more or less flattened at the sides, and with or without a channel all down the face above the sheathing part.

*Leaves of adult plants solitary, or occasionally 2 (very rarely 3) together (in seedling or juvenile plants there may be 4-5 in a tuft), scattered along an underground rootstock at distinct intervals or one close behind another, cylindric:-

Leaves of adult plants 4-9 ft. long (under cultivation, sometimes 1½-3 ft. long), with a distinct narrow channel down the face:-

Adult leaves 1½-2½ in. thick at the base, with a channel 3-16 lin. broad down the face, dark green or dull grass green, with rather paler transverse bands, which become indistinct on old leaves.......................Stuckyi

Adult leaves 3/4-1-3/4 in. thick at the base, with a channel 1½-3 in. broad down the face, dull-dreyish or bluish-green, or of a brownish tint, rather indistinctly marked with paler transverse bands..........................singularis

Leaves of adult plants ½-2½ ft. long, 5-11 lin. (or in S. sulcata when alive, perhaps more) thick; flowers in a simple spike-like raceme not half as long as the leaves:-

Leaves apparently with 8-9 slight grooves....................................sulcata

Leaves usually with 5-6 (rarely more) distinct grooves.......................canaliculata

**Leaves of adult plants 3-18 to a growth:-

+Leaves cylindric, not flattened at the sides (the outermost sometimes half-cylindric):-

°Leaves without a channel down the face above the basal sheathing part, with hardened brown or whitish tips:-

Stems of adult plants rising erectly 3-13 in. above the ground and often branching in the air; branches 1/4-3 ft. long, ascending when short or trailing over other branches when long, covered with scale-leaves and ending a tuft of foliage:-

Leaves distinctly rough to the touch, at least on the apical part, the hardened apex very acute and 1½-2 lin. long..........................suffruticosa

Leaves smooth, 5-12 to a growth:-

Leaves 1/3-1½ ft. long, 6-9 lin. thick, rather suddenly acute or obtuse at the apex, dull bluish-green or dull dark green.........................Phillipsiae

Leaves 3/4-2½ ft. long, 3-4½ lin. thick, gradually becoming very acute at the apex, deep grass green...gracilis

Stem of adult plants none or very short, never branching in the air. Leaves 3-6 to a growth, 2-ranked 2-5 ft. long, 3/4-1/1/4 in. thick, not grooved:-

Leaves mostly stiffly erect and not very widely diverging, the longer or all gradually tapering to a very acute point.....................cylindrica

Leaves all more or less irregularly recurving or widely spreading, rather shortly or abruptly pointed.......................................cylindrica var. patula.

°°Leaves with a distinct channel all down the face, continuous with the sheath, besides and larger than any grooves that may be present, but in the central leaves od adult plants (except perhaps in S. rorida and S. deserti) always much narrower than the full breadth of the leaf at the middle part. Flower-stem branched in S. rorida, in all the others (where known) unbranched and the flower-clusters forming a spike-like raceme:-

Channel with acute whitish or green edges below, passing into obtusely rounded green edges at the upper part of the leaf; some leaves almost without a channel apart from the furrows: flowers mostly 3-6 in a cluster............intermedia

Channel with acute edges from base to apex of the leaf:-

Central leaves of adult plants with green edges to the channel or with white or red-brown edges only at the basal or apical part of the leaf:-

Leaves 5-10 to a growth, widely spreading in a fan-like manner, the outer being horizontally recurved, from the base; central leaves of adult plants 2/3-1-2/3 in. thick, somewhat abruptly narrowed into a short hard white point; flowers 4-10 in a cluster.........patens

Leaves 4-8 to a growth, erect, straight or slightly curved, ½-1 in. thick, gradually tapering into the acute hard white point; flowers 4-10 in a cluster:-

Leaves with 9-12 shallow furrows on the sides and back; pedicles 3-3½ lin. long, jointed below the middle................deserti

Leaves (except from age or when withered) without furrows; pedicels 2-2½ lin. long, jointed slightly above the middle...............................varians

Central leaves of adult plants with reddish-brown or white edges to the channel nearly or quite up to the apex or at least extending beyond the middle (in S. deserti, the length to which the red edge extends is at present unknown), straight, with several longitudinal impressed lines or furrows, besides the channel down the face:-

Leaves very rough, almost like that of fine glass-paper, 2-3½ ft. long ½-3/4 in. thick near the base, dull dark bluish-green..........sordida

Leaves nearly smooth or only slightly rough, 3/4-1½ in. thick near the base:-

Stem erect, up to 9 in. high; leaves spreading 1-1-3/4 ft. long; flower-stem branching.......................rorida

Stem none; flower-stem not branched:-

Central or all the leaves of adult plants gradually but not widely diverging from base to apex, with the tips of the inner pair 6-12 in. apart, 2-1/4-3 ft. long, usually somewhat distinctly banded when young......................................Pearsonii

Central or all the leaves of adult plants more or less parallel and scarcely or not at all wider apart at the tips than at the base, not or very indistinctly banded when young:-

Leaves $2\frac{1}{2}$-$3\frac{1}{2}$ ft. long; channel at about 1 ft. above the base nearly as broad as the leaf, but much narrower than it above; flower with a tube $3\frac{1}{2}$-4 lin. long, and lobes about 6 lin. long......................deserti

Leaves 3-$5\frac{1}{2}$ ft. long; channel at about 1 ft. above the base very much narrower than the breadth of the leaf; flower with a tube 4-6 lin. long, and lobes $7\frac{1}{2}$-9 lin. long.................................rhodesiana

++Leaves with flattened or flat sides and as thick as or thicker than they are broad; channel at about the middle of the leaf nearly or quite as broad as the leaf itself (this character is useless for dried or withered specimens, as the channel contracts in the process of drying and often appears much narrower than the leaf), with reddish-brown margins, usually edged with a white membrane; apex tipped with a hard, sharp point:-

Stem of adult plants 1 ft. or more high; leaves 6-14 to a growth; persistent part of the pedicels $\frac{1}{2}$-3/4 lin. long.............robusta

Stem of adult plants 0-9 in. high; leaves 5-9 to a growth; persistent part of the pedicels 1-$1\frac{1}{2}$ lin. long..................Ehrenbergii

B. Leaves in transverse section at their middle 4 lin. or more thick from the bottom of the channel to the back, and only 1/3-2/3 as thick as they are broad (uncertain in S. lanuginosa) with the channel down the face nearly or quite as broad as the leaf at that part, but in S. rorida much narrower at the upper part of the leaf. (Species S. Volkensii belongs here, but the description is insufficient to place it properly.)

*Stem 4-8 in. high; flower-stem paniculately branched above. (See also S. zanzibarica, of which the flowers are unknown):-

Leaves of adult plants 1-2 ft. long, broadly channelled and somewhat half-cylindric at the basal part, becoming cylindric and narrowly channelled towards the apex.........rorida

Leaves of the adult plants 3-5 ft. long, with a deep concave channel as broad as the leaf throughout its length.........................Perrotii

**Stem none (or S. zanzibarica "scarcely caulescent"); leaves with a channel down the face as broad as the leaf and rounded or obtusely keeled on the back; flower-stem, where known, unbranched and the flower-clusters arranged in a spike-like raceme:-

Adult leaves with reddish-brown edges to the

channel throughout their length..........zanzibarica

Adult leaves with the green edges to the channel or with white or red edges only for a few inches at the base or apex:-

Central leaves of adult plants with slight but evident grooves down the sides and back, half-cylindric with a broad concave channel down the face; flowers 2-5 in a cluster. (See also S. Volkensii)....................lanuginosa

Central leaves od adult plants without grooves on the rounded back; except when withered, 4-10 lin. broad, 2½-4 lin. thick, concave-channelled down the face......................zeylanica

C. Leaves either narrow and channelled, but in transverse section at their middle not more than 3-4 lin. thick, or flat or slightly concave and six to many times as broad as they are thick at the mid-rib, never cylindric nor half-cylindric; flower-stem not branched.

*Edges of the leaves of adult plants green (or from rubbing or injury very narrowly whitish in placed, not all along), apex tipped with a soft green sublate point 1/8- 3½ in. long.

+Leaves od adult plants 1/3-1½ (or in S. subspicata up to 2-1/4) in. broad, 4-24 to a growth, deeply channelled, concave or flattish, broadly linear, strap-shaped or narrowly lanceolate:-

Leaves linear or narrowly linear-lanceolate; and usually more than 1 (and up to 2½) ft. long:-

Central leaves of adult plants 2½-4 lin. thick at the middle, ascending or erect, rather rigid:-

Leaves straight, with several grooves down the back, which are stated to be woolly...lanuginosa

Leaves slightly recurving at the upper part, not grooved on the back except when withered, very dark green....................zeylanica

Central leaves of adult plants 1½-2 lin. thick at the middle:-

Central leaves sub-erectly or ascendingly recurving, concavely channelled rather stiff....................................Roxburghiana

Central leaves very erect, straight, flattish, with a slight angular channel, flexible..................................,burmanica

Leaves either not linear or mostly not more than 1 ft. long, but varying from ½-2 ft. long:-

Stem usually evident, 1-5 in. high, leaves very concave, 1/3-1 1/6 in. broad, not very flexible, with sublate green points, mostly 1½-3 in. long, variegation distinct; lower flowers in pairs.................................parva

Stem none or scarcely evident (in S. Dooneri sometimes 1-2 in. high, but concealed by the leaf-sheaths); leaves flattish or but slightly concave:-

Leaves usually numerous, but varying from 4-20 to a growth ½-2 ft. long:-

Leaves ½-1½ broad, with sublate green points 1/4-2 in. long; flowers 2 or more in a cluster:-

Leaves erect or sub-erect, nearly straight, stiff, very distinctly marked with sub-regular light green and dark green transverse bands and several longitudinal dark green lines on the back.............................grandicuspis

Leaves recurved-spreading, flexible indistinctly and very irregularly transversely banded, without dark green longitudinal lines on the back..........Dooneri

Leaves 1-2 1/4 in. broad, firm or sub-flexible, with sublate green points 2-3 lin. long, deep green, but obscurely variegated when young; flowers usually solitary, sometimes in pairs, tube 14-15 lin. long.....................................subspicata

Leaves about 5 to a growth, 6-10 in. long, ½-1 1/4 in. broad, with sublate green points 2-4 lin. long, transversely banded; flowers in pairs, tube 19-21 lin. long.....................concinna

++Leaves of adult plants 1-4 in. broad, usually more than 1 ft., and up to 4½ ft. long, 1-8 to a growth, flat or concave, strap-shaped or lanceolate to ellipt̶ic:-

Leaves brightly and very conspicuously variegated with light green or whitish green and dark green transverse bars at all ages, and sometimes striped with yellow. (In S. fasciata, the young leaves also have green edges):-

Pedicels 3½-6 lin. long, with
the persistent part 2-5 lin.
long; flower with a tube 4½-
5 lin. long, and lobes 5½-6
lin. long..................................nilotica
Pedicels 2½-4 lin. long, with
the persistent part 1-2 lin.
long; flower with a tube 3-6
lin. long, and lobes 7-8 lin.
long..................................trifasciata
Leaves either rather inconspicuously or at
least not brightly variegated with pale
green and darker green transverse bars
or cloudings or entirely green:-
Flowers mostly solitary, sometimes in
pairs, tube 11-14 lin. long; pedicels ½-1
lin. long; leaves 3/4-2 ft. long, 1-3
in. broad..................................subspicata
Flowers 2-6 in a cluster; pedicels 2-4 lin.
long:-
Tube of the flower 13-14 lin. long;
leaves 2-4 ft. long..................................metallica
var.
longituba
Tube of the flower 3-8 lin. long:-
Leaves of adult plants 1-2 1/4 ft.
(rarely more) long, 1-2½ in. broad:-
Pedicels jointed at or below the
middle, with the upper or deciduous
part 1 3/4-3 lin. long..................................senegambia
Pedicels jointed at or near the
middle with the upper or deciduous
part 1-1½ lin. long..................................subtilis
Leaves of adult plants usually 2-4½ ft.
long, some less:-
Leaves 1-1 3/4 in. broad; pedicels
jointed at or near the middle, with
the deciduous or upper part 1-1½ lin.
long; tube of the flower 3-4 lin.
long..................................subtilis
Leaves 1½-4 in. broad:-
Pedicels jointed at or above the
middle, with the deciduous or
upper part 1-1 1/4 lin. long:-
Leaves 1½-2 3/4 in. broad; tube
of the flower 4 lin. long..................................nilotica var
obscura

Leaves 2-4 in. broad; tube of the
flower 7-8 lin. long..................................metallica var.
nyasica

Pedicels jointed close to the
obconic base of the flower, deciduous part scarcely evident;
leaves 2-4 in. broad; tube of
the flower 6-8 lin. long.................metallica

**Edges of mature leaves of adult plants reddish
brown or whitish, sometimes green when young.
+Tube of the flower 2½-5 in. long:-

Axis of the flower-spike 3-15 in. long;
pedicels 3/4-3 lin. long, jointed at the
base of the flower or just above the
middle; tube of the flower 2½-4 in. long...............longiflora
and var.

Axis of the flower-spike 2-3 in. long and
the spike often head-like:-
Pedicels 3-5 lin. long, not jointed; tube
of the flower 4½-5 in. long:-

Leaves greyish-green, rather obscurely
marked with paler spots or transverse
bars..Kirkii

Leaves dark green, conspicuously and
often brightly marked with whitish or
buff-coloured spots and irregular
bars..Kirkii var.
pulchra

Pedicels 1-1½ lin. long, jointed above
the middle, with the persistent part
½-1 lin. long; tube ofthe flower 3½-4½ in. long...bracteata
see also
S. Braunii)

++Tube of the flower, where known, under 2 in.
long:-

Leaves of adult plants ½-3/4 in. broad,
12-30 to a growth, 5-17 in. long, linear,
deeply channelled down the face, with a
subulate white tip 3/4-1 1/6 in. long,
slightly rough...................................aethiopica

Leaves of adult plants 1-6 in. broad, flat
or slightly concave, with the subulate tips
hard and reddish-brown, or softer and green
when young, sometimes withering to whitish:-

Leaves very distinctly rough on the undersurface or on both sides, with very distinct
transverse ridges as seen under a lens;
pedicels jointed at the middle....................abyssinica

Leaves nearly or quite smooth, or if slightly
rough beneath (in S. thyrsiflora and S. Dawei)
not with very distinct transverse ridges
under a lens:-

Leaves elliptic, oblong or very broadly
lanceolate, 2½-6 in broad:-

Pedicels 1-2 lin. long, jointed close under the flower; flower-tube 9 lin. long.............................grandis

Pedicels 2-3 lin. long, jointed at or slightly above the middle; tube of the flower 10-14 lin. long.............................grandis var. zuluensis

Leaves elongate-lanceolate narrowly lanceolate or strap-shaped, 1-5 in. broad:-

Leaves 5-12 to a growth ascending spreading, 1 1/6-3 in. broad, narrowly lanceolate; flower-tube 9-10½ lin. long.............................augustiflora

Leaves 1-6 to a growth, erect to spreading:-

Leaves dull green, marked with blackish-green longitudinal lines, but without transverse paler green bands or only faintly marked with them beneath when young; tube of the flower 1½-1 2/3 in. long.....................conspicua

Leaves without blackish-green longitudinal lines:-

Leaves of adult plants mostly under 1½ ft. long, 1-3½ in. broad, more or less conspicuously marked with transverse bands of pale green; flower-tube about 9 lin. long.....................thyrsiflora

The larger or most of the leaves of adult plants more than 2 ft. long, but often mingled with some that are less, some or all of them with more or less evident paler markings, at least on the under surface (according to Dawe, the leaves of S. Dawei, are uniformly green on both sides, but on the living plants seen they are variegated):-

Leaves of adult plants 2-6 to a growth, the larger 2-3 ft. long:-

Pedicels jointed close under the flower, with no deciduous part:-

Leaves with distinct dark red-brown edges.............................Dawei

Leaves with whitish or pale reddish-brown edges.............................metallica var. longituba

Pedicels jointed at or above the middle with a distinct deciduous part:-

Leaves very flexible, recurved, spreading or upper part sometimes drooping, variegated with narrow dark green and broader pale or whitish-green transverse zig-zag bars on both

sides, not glaucous..............................fasciata
Leaves rigidly coriaceous, sub-
erect or slightly recurving,
variegated, with broad dark
green and narrower paler
green transverse bars, more
or less glaucous..............................chinensis
Leaves of adult plants mostly 1-3
(rarely 4) to a growth, the larger
3-5 ft. long:-
Leaves rigid, 3-4 lin. thick at
the middle, distinctly varie-
gated, more or less glaucous;
sheaths of flower-stem 2-5½
in. long, all green and firm,
or the upper becoming sub-
membranous;..............................Raffillii and
var.

Leaves more or less flexible or
firmly coriaceous, 1½-2 lin.
thick at the middle, not glaucous;
sheaths of flower-stem ½-4 in.
long, whitish or whitish-brown,
thin, submembranous:-
Leaves mostly 2½-5 ft. long,
and 2-4 in. broad, with
petioles 2-24 in. long..............................metallica
and var.

Leaves mostly 2-3 ft. long and
3-5 in. broad, convolute at the
base without a very evident
petiole..............................liberica

Project G 50 Sansevieria

Belle Glade, Fla.
31 Dec. 52

VARIETAL STUDY OF GROWTH CHARACTERISTICS

Everglades peat - 50-9 - Belle Glade
Mucky sand - 50-13 - Fort Lauderdale
Light sand - 50-12 - Jupiter

Summary of Results: The data shows that S. longiflora produced the most rapid growth per unit planted, but S. trifasciata increased more rapidly per unit area per unit time. Since it is not practical to plant sansevieria commercially at a density suitable for harvest of fiber, S. trifasciata has the characteristics of growth best suited for yield of fiber.

Summary of plant measurements

	trifasciata	guineensis	longiflora
Belle Glade - growth per unit (1 x 1 ft.)			
Ht. of leaves	17.9	18.8	22.4
No. of leaves	8.9	6.0	7.8
No. of plants	2.4	2.3	1.4
Fort Lauderdale - growth per area (12 months)			
1.0 x 1.0	1.9	1.7	1.9
1.5 x 1.5	2.3	2.6	1.2
2.0 x 2.0	2.6	2.1	1.5
Jupiter - growth per time (1 x 1 ft.)			
6 months	1.4	1.3	1.2
12 months	2.1	2.2	1.7
24 months	8.5	4.3	2.2

OUTLINE OF EXPERIMENT

Sansevieria 50-13 Fort Lauderdale

1. Expt.: Variety - rate of planting
2. Location: Broward County Airport, 3 acre plot
3. Soil: Davie fine sand
4. Variety:
    - a) *S. trifasciata*
    - b) *S. longiflora*
    - c) *S. guineensis*
    - d) *S. Laurentii* (yellow)
    - e) *S. Laurentii* (green)
5. Plant Spacing:
    - i) 1 x 1 foot
    - ii) 1½ x 1½ feet
    - iii) 2 x 2 feet
6. Design: Randomized complete blocks, 6 x 9 foot plot
7. Results: *S. trifasciata* and *S. guineensis* reproduced at a more rapid rate than other species. The 1 x 1 foot plantings were fairly well covered over with plants at the end of the first year. The wider spacings allowed for serious competition of weeds after the end of the first year. The experiment was discontinued after that time and used for weed control work in 1951-52.

Data Sheet 1 Sansevieria 50-13 Fort Lauderdale

Number of plants, 20 Dec. 50, six months after planting

Spacing (Ft.)	I	II	III	IV	Total
		S. trifasciata			
1.0 x 1.0	84	90	73	100	347
1.5 x 1.5	33	31	56	31	151
2.0 x 2.0	12	25	30	24	91
			Variety mean		49.1
		S. guineensis			
1.0 x 1.0	84	73	82	82	321
1.5 x 1.5	37	36	48	39	160
2.0 x 2.0	28	23	36	28	115
			Variety mean		49.7
		S. longiflora			
1.0 x 1.0	71	77	75	82	305
1.5 x 1.5	30	29	38	27	124
2.0 x 2.0	16	22	25	17	80
			Variety mean		42.4
		S. Laurentii (g)			
1.0 x 1.0	66	75	65	73	279
1.5 x 1.5	39	39	33	34	145
2.0 x 2.0	21	22	26	20	89
			Variety mean		42.8
		S. Laurentii (y)			
1.0 x 1.0	70	35	63	84	282
1.5 x 1.5	27	19	34	35	115
2.0 x 2.0	11	7	12	23	53
			Variety mean		37.5

MSD Var. mean (.05) equals 9.1; (.01) equals 12.2

Analysis of Variance

Source	DF	SS	V	F
Total	59	37,106.2		
Spacing	2	33,307	16,654	406.19**
Variety	4	1,246	312	7.61**
S x V	8	411	51	1.24
Error	45	1,845	41	

**Highly significant

Data Sheet 2 Sansevieria 50-13 Fort Lauderdale

Number of plants 20 July 51, 1 year after planting

Spacing (Ft.)	I	II	III	IV	Total
	S. trifasciata				
1.0 x 1.0	168	122	189	186	665
1.5 x 1.5	81	95	90	77	343
2.0 x 2.0	52	61	62	58	233
		Variety mean			103
	S. guineensis				
1.0 x 1.0	147	156	128	120	551
1.5 x 1.5	105	96	126	93	420
2.0 x 2.0	53	60	49	78	240
		Variety mean			101
	S. longiflora				
1.0 x 1.0	152	148	167	122	589
1.5 x 1.5	47	36	29	39	151
2.0 x 2.0	26	34	28	30	118
		Variety mean			72
	S. Laurentii (g)				
1.0 x 1.0	84	141	89	49	363
1.5 x 1.5	65	45	88	50	248
2.0 x 2.0	29	38	18	32	117
		Variety mean			61
	S. Laurentii (y)				
1.0 x 1.0	83	75	92	69	319
1.5 x 1.5	51	37	53	48	189
2.0 x 2.0	23	17	19	26	85
		Variety mean			49

MSD Variety mean (.05) equals 23.4; (.01) equals 31.1

Analysis of Variance

Source	DF	SS	V	F
Total	59	126,853		
Spacing	2	74,524	37,262	134.04**
Variety	4	27,930	6,983	25.12**
S x V	8	11,879	1,484	5.33**
Error	45	12,520	278	

**Highly significant

Summary Sheet 1 Sansevieria 50-13 Fort Lauderdale

Net increase of plants per unit planted

Variety	Spacing			
	1 x 1	1.5 x 1.5	2 x 2	Ave.
S. *trifasciata*				
6 months	1.61	1.57	1.89	1.69
12 months	1.92	2.27	2.56	2.25
Average	1.76	1.92	2.23	1.97
S. *guineensis*				
6 months	1.49	1.66	2.40	1.85
12 months	1.72	2.63	2.09	2.14
Average	1.61	2.15	2.25	2.00
S. *longiflora*				
6 months	1.41	1.29	1.67	1.46
12 months	1.93	1.21	1.48	1.54
Average	1.67	1.25	1.58	1.50
S. *Laurentii* (g)				
6 months	1.29	1.51	1.85	1.55
12 months	1.30	1.71	1.31	1.44
Average	1.29	1.61	1.58	1.50
S. *Laurentii* (y)				
6 months	1.30	1.20	1.04	1.18
12 months	1.13	1.64	1.60	1.45
Average	1.21	1.42	1.32	1.32
Spacing average	1.51	1.67	1.79	

Remarks: Experiment was discontinued after first year because a heavy growth of grass weeds which seriously competed with the sansevieria. The 1 x 1 foot plantings were fairly well filled in at the end of the first year. S. *guineensis* and S. *trifasciata* had the most rapid growth rate. There was somewhat more rapid growth of plants at the wider spacings, but the wider spacing allowed serious competition of weeds in the area not covered with plants.

OUTLINE OF EXPERIMENTS

Sansevieria 50-12 Planted April 1950 Jupiter

1. Expt.: Variety test

2. Location: Westerveld place, 12 miles west of Jupiter on Indiantown Road

3. Soil: Sunniland sand

4. Varieties: *S. trifasciata*

   S. guineensis

   S. Laurentii (g)

   S. longiflora

   S. Laurentii (y)

5. Design: Random block, 4 replicates, 6 x 15 foot plots

6. Results: *S. trifasciata* increased at a rate of approximately 3 plants per plant per year as a geometric progression. Other species increased at a lower rate.

Data Sheet 1 Sansevieria 50-12 Jupiter

Number of plants per plot, six months after planting

Variety	I	II	III	IV	Mean
S. trifasciata	126	114	108	143	122
S. guineensis	106	137	101	132	119
S. longiflora	88	95	141	94	105
S. Laurentii (g)	133	130	137	161	140
S. Laurentii (y)	122	151	105	116	123
	575	627	592	646	

Analysis of Variance

Source	DF	SS	MS	F
Total	19	7,866		
Rep.	3	626	209	0.54
Variety	4	2,604	651	1.69
Error	12	4,636	386	

Data Sheet 2 Sansevieria 50-12 Jupiter

Number of plants per plot, 12 months after planting

Variety	I	II	III	IV	Mean
S. trifasciata	185	177	150	228	185
S. guineensis	180	205	178	245	202
S. longiflora	138	134	166	180	154
S. Laurentii (g)	171	195	226	264	214
S. Laurentii (y)	190	162	150	191	173
	864	873	870	1108	

Analysis of Variance

Source	DF	SS	MS	F
Total	19	22,430		
Replicates	3	8,577	2,859	
Variety	4	8,782	2,195	5.19*
Error	12	5,071	423	

*Significant - MSD (05) equals 44.9

Data Sheet 3 Sansevieria 50-12 Jupiter

Number of plants per plot, 2 years after planting

Variety	I	II	III	IV	Mean
S. trifasciata	459	720	630	909	679
S. guineensis	279	477	315	477	387
S. longiflora	180	171	189	234	194
S. Laurentii (g)	630	549	459	729	592
S. Laurentii (y)	405	405	549	540	474
	1953	2322	2142	2889	

Analysis of Variance

Source	DF	SS	MS	F
Total	19	767,896		
Replicates	3	97,994	32,664	3.84
Variety	4	567,867	141,967	16.70**
Error	12	102,035	8,503	

**Highly significant -
MSD (05) 140; (01) 196

Summary Sheet 1   Sansevieria 50-12   Jupiter

Net increase of plants per unit planted; plants spaced 1 x 1 feet

	Months After Planting			
Variety	6	12	24	Av.
S. trifasciata	1.4	2.1	8.5	3.9
S. guineensis	1.3	2.2	4.3	2.9
S. longiflora	1.2	1.7	2.2	1.7
S. Laurentii (g)	1.6	2.4	7.8	3.9
S. Laurentii (y)	1.3	1.9	5.3	2.8
Average	1.3	2.1	5.6	

Remarks: The greatest net increase of plants was observed in *S. trifasciata*. The number of plants per unit planted tended to increase in a geometric progression, but was much reduced in *S. longiflora*.

OUTLINE OF EXPERIMENTS

Sansevieria 50-9 Belle Glade, Florida

1. Expt.: Variety test

2. Location: Belle Glade

3. Soil: Everglades Peat

4. Varieties: a. *S. trifasciata*

   b. *S. longiflora*

   c. *S. guineensis*

   d. *S. Laurentii* (g)

5. Design: Random block, 4 replicates, 6 x 18 foot plot, with plants spaced 1 ft. by 1 ft.

6. Remarks: *S. longiflora* grows rapidly after planting because it has a large reserve of food stored in the starchy rhizome. The broad thick leaves quickly cover the surface of the ground, but the plant does not develop a very dense stand. By the end of the first year, the greatest number of plants per square foot and the largest number of leaves per plant were observed in *S. trifasciata*. This experiment was discontinued after the first year because all species were frozen to the ground in December 1950.
   The annual growth of the clones tested was not found satisfactory for fiber production.

Data Sheet 1 Sansevieria 50-9 Belle Glade

Total and new shoots from whole plants, 3 months after planting, planted 1 plant per square foot

S. trifasciata		*S. Laurentii*		*S. guineensis*		*S. longiflora*	
Total	New	Total	New	Total	New	Total	New
18	2	25	7	22	3	25	8
20	3	21	3	28	7	19	4
17	0	23	4	25	4	18	4
21	3	23	5	25	6	21	7
24	4	20	4	26	5	20	5
	12		23		25		28
24	3	27	8	34	13	25	8
27	7	27	0	31	8	19	4
25	5	20	7	27	8	18	4
19	1	28	9	29	8	21	7
27	5	32	14	39	13	20	5
	21		28		30		28
26	6	27	6	20	0	34	14
24	4	28	8	16	3	20	5
27	5	29	9	25	9	36	10
23	3	24	4	25	8	22	7
24	4	23	2	23	3	20	7
	22		29		25		43
24	3	20	0	25	8	20	6
26	6	16	3	24	6	19	5
24	4	25	9	26	8	26	10
23	3	25	8	24	6	21	6
26	6	23	7	25	5	19	4
	22		27		33		31
Total	77		107		113		130
Means	19.2		26.8		28.2		32.5

Analysis of Variance of New Plants

Variation	DF	SS	V	F
Total	15	658		
Replicates	3	140	46.7	2.87
Varieties	3	371	123.7	7.59**
Error	9	147	16.3	

Minimum significance difference of means is: 6.04 plants

Remarks: *S. longiflora* produced the greatest number of new plants 3 months after planting.

Data Sheet 2 Sansevieria 50-9 Belle Glade

Average height of leaves 9 months after planting

Variety	I	II	III	IV	Av.
S. trifasciata	17.5	16.9	19.0	18.2	17.9
S. guineensis	15.7	24.5	16.9	18.1	18.8
S. longiflora	21.0	22.7	22.8	23.0	22.4
S. Laurentii	17.9	19.4	17.6	18.6	18.4
Total	72.1	83.5	76.3	77.9	

Analysis of Variance

Source	DF	SS	V	F
Total	15	10,318		
Replicate	3	1,669	556	1.32
Varieties	3	5,002	1,667	3.95*
Error	9	3,647	422	

MSD (05) equals 3.28

Remarks: Leaves of *S. longiflora* grew most rapidly.

Data Sheet 3 Sansevieria 50-9 Belle Glade
Average number of leaves per plant, 9 months after planting

Variety	I	II	III	IV	Av.
S. trifasciata	9.8	7.0	9.7	9.0	8.9
S. guineensis	6.4	6.6	6.0	5.0	6.0
S. longiflora	9.6	6.8	8.2	6.8	7.8
S. Laurentii	7.6	10.3	8.0	7.6	8.4
Total	33.4	30.7	31.9	28.4	

Analysis of Variance

Source	DF	SS	V	F
Total	15	3,593		
Replicate	3	334	111	
Varieties	3	1,890	630	4.14*
Error	9	1,369	152	

MSD(05) equals 1.99
*Significant

Remarks: Greatest number of leaves observed in *S. trifasciata*.

Data Sheet 4 Sansevieria 50-9 Belle Glade

Number of plants per square foot, 12 months after planting

Variety	I	II	III	IV	Av.
S. trifasciata	2.39	2.50	2.33	2.55	2.44
S. guineensis	2.22	2.28	2.33	2.44	2.32
S. longiflora	1.22	1.44	1.50	1.33	1.36
S. Laurentii (g)	2.28	2.78	1.94	1.89	2.22
Total	8.11	9.00	8.10	8.21	

Analysis of Variance

Source	DF	SS	V	F
Total	15	34,399		
Replicate	3	1,403	468	0.90
Variety	3	28,332	9,444	18.23**
Error	9	4,664	518	

MSD(05) equals 0.52; (01 equals 0.74)

Remarks: Greatest number of plants per sq. ft. observed in *S. trifasciata*.

Summary Sheet 1 Sansevieria 50-9 Belle Glade

Plants per square foot, 3 and 12 months after planting, planted 1 plant per sq. ft.

	I	II	III	IV	Av.
S. trifasciata					
3 months	1.1	1.3	1.3	1.8	1.4
12 months	2.4	2.5	2.3	2.6	2.4
					1.9
S. guineensis					
3 months	1.4	1.5	1.2	1.4	1.4
12 months	2.2	2.2	2.3	2.4	2.3
					1.8
S. longiflora					
3 months	1.2	1.1	1.4	1.2	1.2
12 months	1.2	1.4	1.5	1.3	1.4
					1.3
S. Laurentii					
3 months	1.2	1.4	1.4	1.2	1.3
12 months	2.3	2.8	1.9	1.9	2.2
					1.7

Remarks: *S. trifasciata* produced the most rapid growth of plants per year. This experiment was discontinued after the first year because of severe injury by frost of the above-ground portion of the plants.

Sansevieria Variety Propagation 1950

1. Variety-propagation in sandy-muck soil by whole plants and rhizomes, Port Mayaca, Expt. 50-8
2. Variety-propagation in peat soil by leaf cuttings, Belle Glade, Expt. 50-2
3. Variety-propagation in sandy soil and water culture by leaf cuttings Boynton, Expt. 50-19
4. Cultural methods for propagating leaf cuttings of S. trifasciata, Boynton, Expt. 50-17
5. Nursery propagation of leaf cuttings of S. trifasciata, Boynton, Expt. 50-21

Abstract of Results: All species were propagated more readily from whole plants than rhizomes. Rhizomes of S. longiflora had better survival value than other species. Leaf cuttings of S. trifasciata were easily rooted in peat soil but cuttings of S. longiflora and S. guineensis did not root well. Leaf cuttings of S. trifasciata rooted and produced rhizomes more rapidly in sand and solution culture than other species. The slow rooting and development of S. longiflora and S. liberica leaf cuttings was not increased by a nutrient solution culture. Cover crops, mulching, aluminum foil and nitrogen fertilizer did not affect the mortality of leaf cuttings of S. trifasciata. On this soil type, a mulch of wood pulp increased frost injury. The injury was not reduced by aluminum foil. Weeds were controlled by a cover crop of cowpeas but were not controlled by other treatments. Growth of sansevieria was best in the aluminum foil treatment, but the difference was not significant. One acre of nursery was found to plant about 5 acres in the field per year.

Sansevieria 50-8
Revised 1 July 1950

Port Mayaca

1. Expt.: Variety - propagation in sandy-muck soil by whole plants and rhizomes

2. Location: Triangular 3 acre plot East of Port Mayaca on Highway 76 at first turn of road

3. Soil: Davie fine sand

4. Variety:
   - a. *S. trifasciata*
   - b. *S. Laurentii*
   - c. *S. guineensis*
   - d. *S. longiflora*

5. Method of propagation:
   - a. Whole plants
   - b. Rhizomes

6. Design: Randomized complete block, 6 x 9 foot plot, 1 plant per sq. ft. Four replicates.

7. Abstract of Results: Whole plants were far more satisfactory for planting stock than rhizomes. *S. longiflora* and *S. guineensis* were more readily propagated from rhizomes than *S. trifasciata* and *S. Laurentii*, probably because of the large rhizomes of these species have better food reserves.

Summary Sheet 1 Sansevieria 50-8 Port Mayaca

Observations 12 July 51, 1 year after planting

Sansevieria Species	Planting Stock	I	II	III	IV	Tot.
S. trifasciata	Wh. Plts.	59	69	78	69	275
	Rhizomes	18	16	17	14	65
Total		77	85	95	83	340
S. Laurentii	Wh. Plts.	63	51	44	42	200
	Rhizomes	18	0	8	16	42
Total		81	51	52	58	242
S. guineensis	Wh. Plts.	40	29	49	51	169
	Rhizomes	34	42	37	25	138
Total		74	71	86	76	307
S. longiflora	Wh. Plts.	46	38	60	53	197
	Rhizomes	34	40	27	39	140
Total		80	78	87	92	337
Rep. Total		312	285	320	309	

Analysis of Variance

Source	DF	SS	V	F
Total	31	11,427		
Replicates	3	85	28	
Varieties	3	804	268	2.05
Stock	1	6,498	6,498	49.50**
Var. x S	3	1,281	427	3.26*
Error	21	2,759	131	

**Highly significant
*Significant

Outline Sansevieria 50-2 Belle Glade
Planted April 1950
Revised January 1951

1. Expt.: Variety propagation in peat soil by leaf cuttings

2. Location: Everglades Experiment Station

3. Soil: Everglades Peat

4. Variety: a) *S. trifasciata*

   b) *S. guineensis*

   c) *S. longiflora*

   d) *S. Laurentii*

6. Design: Random block 18 x 18 ft. plot, 4 replicates, 25 leaf cuttings per 18 ft. row, rows 1 ft. apart

7. Abstract of Results: The leaf cuttings of *S. trifasciata* take root and produce new plants more rapidly than other species tested. The fibrous leaves of *S. longiflora* do not readily root and are not very satisfactory for vegetative propagation.

Summary Sheet 1 Sansevieria 50-2 Belle Glade
Planted 24 April 50

Observations 5 June 50, approximately 6 weeks after planting

Number of dead leaf cuttings

Species	I	II	III	IV	Mean
S. trifasciata	14	17	9	23	16
S. Laurentii	156	115	76	48	99
S. guineensis	216	242	248	231	234
S. longiflora	171	278	280	244	243

Analysis of Variance

Source	DF	SS	V	F
Total	15	160,818		
Replicates	3	1,845	615	0.42
Varieties	3	145,709	48,570	32.95**
Error	9	13,264	1,474	

**Highly significant

MSD of means at T .05 is 62

Remarks: *S. trifasciata* leaf cuttings take root and survive much better than other species tested.

Summary Sheet 2 Sansevieria 50-2 Belle Glade
Planted 24 April 50, observations 3 July 50, approx. 10 weeks after planting

Number of rhizomes per ten leaf cuttings per plot

Species	I	II	III	IV	Mean
S. trifasciata	8	7	6	8	7.2
S. guineensis	6	6	5	9	6.5
S. Laurentii	3	5	3	4	3.8
S. longiflora	3	1	1	1	1.5

Analysis of Variance

Source	DF	SS	V	F
Total	15	101		
Replicates	3	7	2.3	1.77
Varieties	3	82	27.3	21.00**
Error	9	12	1.3	

**Highly significant

MSD of means at T .05 is 2.6

Remarks: *S. trifasciata* and *S. guineensis*, more rhizomes per cutting than *S. Laurentii* and *S. longiflora*.

Outline Sansevieria 50-19 Boynton

1. Expt.: Variety propagation in sandy soil and water culture by leaf cuttings

2. Treat.: a. Leon fine sand (fertilized)

   b. Hydroponic solution culture

3. Variety: 1. S. guineensis

   2. S. trifasciata

   3. S. liberica

   4. S. Laurentii (yellow chimera)

   5. S. longiflora

   6. S. Laurentii (green plant)

4. Design: Random block, 6 leaf tip cuttings per plot, 6 varieties, 3 replicates.

5. Abstract of Results: Leaf cuttings of S. liberica and S. longiflora are slow to root and have a higher mortality than other species tested. S. trifasciata takes root more readily and produces rhizomes more rapidly than other species. The rate of growth of S. trifasciata was increased by water culture.

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Summary Sheet 1 Sansevieria 50-19 Boynton

Summary of Dead Cuttings Observations 22 Jan. 51

	Water Culture				Sand Culture			
	I	II	III	Tot.	I	II	III	Tot.
S. liberica	2	4	5	11	1	2	4	7
S. longiflora	4	3	4	11	6	4	3	13
S. guineensis	0	4	0	4	1	0	1	2
S. Laurentii (y)	1	1	3	5	3	2	3	8
S. Laurentii (g)	0	0	0	0	0	0	1	1
S. trifasciata	0	0	0	0	0	0	0	0
Total				31				31

Analysis of Variance

Variation	DF	SS	V	F
Total	35	113.22		
Whole Plots	17	96.22		
Rep.	2	1.55	.78	
Varieties	5	77.55	15.51	9.07**
R x V (Error a)	10	17.12	1.71	
Split Plots	18	17.00		
Culture	1	.00		
C x V	5	5.67	1.13	1.20
Error b	12	11.33	.94	

**Highly significant

Summary Sheet 2 Sansevieria 50-19 Boynton

Summary of Number of Fibrous Roots per Cutting Observations 22 Jan. 51

	Water Culture				Sand Culture			
	I	II	III	Tot.	I	II	III	Tot.
S. liberica	0	11	0	11	9	14	0	23
S. longiflora	0	29	41	70	0	0	0	0
S. guineensis	108	26	97	231	96	164	84	344
S. Laurentii (y)	107	119	32	258	96	117	87	300
S. Laurentii (g)	189	195	178	562	164	173	91	428
S. trifasciata	191	194	178	563	115	114	104	333
Total				1695				1428

Analysis of Variance

Variation	DF	SS	V	F
Total	35	167,398.75		
Whole Plot	17	141,674.25		
Rep.	2	3,048.50	1,524.25	
Varieties	5	134,239.91	26,847.98	61.21**
R x V (Error a)	10	4,385.84	438.58	
Split Plot	18	25,724.3		
Cultures	1	1,980.25	1,980.25	2.23
C x V	5	13,091.92	2,618.38	2.95
Error b	12	10,652.33	887.69	

**Highly significant

Summary Sheet 3 Sansevieria 50-19 Boynton

Summary of Length of Fibrous Roots Observations 22 Jan. 51

	Water Culture				Sand Culture			
	I	II	III	Tot.	I	II	III	Tot.
S. liberica	0	12	0	12	21	21	0	42
S. longiflora	0	40	72	112	0	0	0	0
S. guineensis	139	50	138	327	154	234	116	504
S. Laurentii (y)	160	154	25	339	163	138	104	405
S. Laurentii (g)	261	194	191	646	308	253	127	688
S. trifasciata	334	430	348	1112	276	240	146	662
Total				2548				2301

Analysis of Variance

Variation	DF	SS	V	F
Total	35	483,731.64		
Whole Plot	17	414,516.14		
Rep.	2	15,358.39	7,679.2	
Varieties	5	377,898.14	75,579.6	35.55**
R x V	10	21,259.61	2,125.9	
Split Plot	18	69,215.50		
Cultures	1	1,096.69	1,096.7	0.49
C x V	5	41,135.47	8,227.1	3.66*
Error b	12	26,983.34	2,248.6	

**Highly significant
*Significant

Summary Sheet 4 Sansevieria 50-19 Boynton

Summary of Number of Rhizomes Observations 22 Jan. 51

	Water Culture				Sand Culture			
	I	II	III	Tot.	I	II	III	Tot.
S. *liberica*	0	0	0	0	0	0	0	0
S. *longiflora*	0	0	0	0	0	0	0	0
S. *guineensis*	0	0	0	0	0	0	0	0
S. *Laurentii* (y)	0	0	0	0	0	0	0	0
S. *Laurentii* (g)	0	1	0	1	0	0	0	0
S. *trifasciata*	10	11	10	31	7	6	7	20
Total				32				20

Analysis of Variance

Variation	DF	SS	V	F
Total	35	380.89		
Whole Plot	17	358.89		
Rep.	2	0.06	.03	
Varieties	5	358.56	71.71	2390.3**
R x V	10	0.27	.03	
Split Plots	18	22.00		
Cultures	1	4.00	4.00	28.57**
C x V	5	16.33	3.27	23.36**
Error b	12	1.67	.14	

**Highly significant

Port Mayaca

Outline Sansevieria 50-17 15 September 1950

1. Expt.: Cultural methods for planting leaf cuttings.

2. Location: Three acre plot on Bessemer Properties, adjacent highway 76 at Port Mayaca.

3. Soil: Davie fine sand

4. Variety: Leaf cuttings of S. trifasciata.

5. Treatment: General application of 1000#/a of 2-8-6 fertilizer.

   a) Cover crop of Seminole cowpeas.

   b) Mulch with 10 tons/a of chicken manure.

   c) Mulch with 5 tons/a of wood pulp.

   d) Cover with aluminum foil plus 40#/a of Uramon.

   e) No cover with 40#/a Uramon.

   f) Check.

6. Design: Random block, three replicates, plot 6 x 9 ft., rows 8 inches apart, cuttings adjacent in the row.

7. Abstract of Results: Cover crops, mulching, aluminum foil and N fertilizers did not affect the mortality of the leaf cuttings. Wood pulp increased the frost injury over the check. Growth of weeds was significantly decreased by a cover crop of cowpeas and was significantly increased (in the row) by the aluminum foil. The growth of sansevieria was best in the aluminum foil treatment but the increase over check was not significant.

Data Sheet 1 Sansevieria 50-17 Port Mayaca
Observations 21 Nov. 50

Number of Leaf Cuttings per Row, 3 Months After Planting

Treatment	Rep.	Plot	Row				Sub	Total
			1	2	3	4	Total	
Cowpeas	I	06	31	29	32	33	125	
	II	07	34	42	29	39	144	
	III	14	34	34	44	55	167	436
Chicken manure	I	01	35	41	47	37	160	
	II	11	34	34	32	30	130	
	III	17	26	44	33	35	138	428
Wood pulp	I	03	44	27	33	30	134	
	II	12	42	34	34	39	149	
	III	16	39	28	34	30	131	414
Aluminum foil	I	02	27	49	48	40	164	
	II	10	26	30	33	33	122	
	III	18	41	40	33	35	149	435
Uramon	I	05	32	35	36	39	142	
	II	08	42	37	46	27	152	
	III	15	43	31	38	42	154	448
Check	I	04	35	43	41	37	156	
	II	09	34	27	33	29	123	
	III	13	54	60	59	42	215	494

Analysis of Variance

Total	D.F.	S.S.	V	F
Total	17	8,154		
Replicate	2	2,515	1,258	2.87
Treatment	5	1,267	253	0.58
Error	10	4,372		

Remarks: Treatments did not affect mortality of the leaf cuttings.

Data Sheet 2. Sansevieria 50-17 Port Mayaca
Number of Frost Injured Cuttings, 9 Jan. 51
Frost Injury Approximately 4 Months After Planting

Treatment	Rep.	Plot	1	2	3	4	5	Total	Mean
Cowpeas I	I	06	2	3	8	7	10	30	
	II	07	2	0	4	1	5	12	
	III	14	11	2	10	1	3	27	
								69	33
Chicken Manure	I	01	2	4	3	3	4	16	
	II	11	5	6	4	5	2	22	
	III	17	5	6	11	5	7	34	
								72	24
Wood Pulp	I	03	17	16	23	20	17	93	
	II	12	19	18	20	22	16	95	
	III	16	17	12	16	18	17	80	
								268	89**
Aluminum Foil	I	02	2	3	6	18	3	32	
	II	10	5	3	3	5	3	19	
	III	18	13	6	12	9	4	44	
								95	32
Uramon	I	05	8	6	11	5	5	35	
	II	08	7	2	9	8	7	33	
	III	15	7	9	13	9	14	52	
								120	40
Check	I	04	2	3	2	3	6	16	
	II	09	4	8	7	2	8	29	
	III	13	5	4	10	5	3	27	
								72	24

Analysis of Variance

Variation	DF	SS	V	F
Total	17	10,996		
Rep.	2	268	134	1.57
Treat.	5	9,881	1976	23.24**
Error	10	847	85	

**Highly significant. MSD To 5 of means is 16.8

Remarks: Wood pulp greatly increased the number of frozen cuttings, probably by reducing the heat radiation from the soil.

Data Sheet 3 Sansevieria 50-17 Port Mayaca
Observations 14 Feb. 51

Ozs. Green Weight of Weeds Per Plot

	I	II	III	Mean
Cowpeas	29	17	21	22.3
Uramon	50	31	47	42.7
Check	78	52	26	52.0
Wood Pulp	58	60	46	54.7
Chicken Manure	79	58	62	66.3
Aluminum Foil	85	70	87	80.7
L.S.D. To .05 of means				20.4
L.S.D. To .01 of means				29.0

Analysis of Variance of Weed Harvest

Variation	DF	SS	MS	F
Total	17	8,154		
Replicate	2	910	455	
Treatment	5	5,983	1,197	9.50**
Error	10	1,261	126	

Remarks: Growth of weed of aluminum foil treatment over check was highly significant. Growth of weeds of cowpea treatment compared to check was significantly reduced.

Data Sheet 4 Sansevieria 50-17

Observations 27 July 51

Number of Plants per Row

Port Mayaca

Treatment	Rep.	1	2	3	Sub-total	Total
Cowpeas	I	45	37	31	113	
	II	40	27	39	106	
	III	35	28	23	86	305
Chicken Manure	I	34	34	26	94	
	II	39	40	30	109	
	III	28	22	23	73	276
Wood Pulp	I	24	19	25	68	
	II	29	25	33	87	
	III	31	31	23	85	240
Aluminum Foil	I	47	33	30	110	
	II	43	35	37	115	
	III	42	36	36	114	339
Uramon	I	34	37	44	115	
	II	36	37	30	103	
	III	33	29	29	91	309
Check	I	34	37	44	115	
	II	34	39	35	108	
	III	34	28	29	91	314

Source	DF	SS	V	F
Total	17	3,855		
Replicate	2	752	376	
Treatment	6	1,984	331	2.66
Error	9	119	124	

Remarks: Treatments not significant

Outline Sansevieria 50-21 Boynton

1. Expt.: Nursery propagation of leaf cuttings of *S. trifasciata*

2. Location: Winchester Farm, Boynton

3. Soil: Leon fine sand

4. Variety: *S. trifasciata*

5. Treatment: Leaf cuttings

6. Design: Field planting, approximately 1/2 acre, rows 21" apart, 6-8 inches between cuttings

7. Abstract of Results: Approximately 800# leaf material were cut and planted Jan. 1950. The plants were dug April-May 1951, sufficient to plant a two acre field of 30 inch rows, plants about 9 inches in the row, 25,000 plants per acre. One acre nursery is estimated to plant 5 acres in the field per year.

THE EFFECTS OF SOME COMMONLY USED WEED HERBICIDES ON THE GROWTH OF SANSEVIERIA[1]

by

E.O. Gangstad, C.C. Seale and J.F. Joyner[2]

OBJECT OF EXPERIMENT: Sansevieria species are commonly grown as ornamental plants in different parts of the United States. Certain species have considerable potentiality as a fiber crop in South Florida. Due to their relatively slow rate of growth, weed competition is a serious problem in the establishment of a good stand for fiber production. Chemical methods of weed control appear to offer a possible solution to the problem. Before attempting to outline a program of weed control, it seemed desirable to determine the effects of some commonly used herbicides on the growth of the sansevieria plant.

ABSTRACT OF RESULTS: A contact herbicidal oil fortified with pentachlorophenol (Shell Weed Killer No. 130 used) at 5, 10, and 15 gallons per acre and a selective contact type, sodium trichloreacetate (Sodium TCA Weed Killer 90% used) at 25, 50, and 100 pounds per acre seriously injured the vegetative growth of an established stand of *Sansevieria guineensis*. A dinitro secondary anyl phenol preparation (Sinox General used) at 1 gallon per acre did not seriously affect the plant but higher concentrations were detrimental to growth. The amine salt of 2,4-D (Weedmaster 40) at 0.5, 1.0 and 2.0 pounds of 2,4-D acid equivalent per acre, and a preparation containing ammonium dinitro secondary butyl phenate (Dow-Selective Weed Killer) used at 1, 2 and 4 gallons per acre did not appear to have any noticeable effect on the growth and yield of sansevieria. In this connection, the ammonium secondary butyl phenate preparation gave the most effective control of weeds.

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[1] Paper given at the national meetings of the American Society of Agronomy, October 1950, Cinncinatti, Ohio.

[2] Agent, BPISAE, ARA, Associate Agronomist, Florida Everglades Experiment Station, University of Florida, Assistant Agronomist, BPISAE, ARA, Belle Glade, Florida.

OUTLINE SANSEVIERIA 50-10 BOYNTON, FLORIDA

20 Feb. 50 Revised 21 Mar. 50

1. EXPERIMENT: Effect of weed control chemicals on sansevieria

2. LOCATION: Boynton, Florida

3. SOIL: Leon fine sand

4. VARIETY: *Sansevieria guineensis* (mature stand)

5. TREATMENT: One application in 100 gallons of water per acre

	Concentrations 1	2	3	
a) Sinox	1	2	4	gal.
b) DiNitro	1	2	4	gal.
c) Shell No. 130	5	10	15	gal.
d) T.C.A.	.25	50	100	lbs.
e) 2,4-D	0.5	1	2	lbs.
f) Areocyanate	5	10	15	lbs.

6. DESIGN: Random block, 2 replicates, 5 x 10 foot plot

DATA SHEET I SANSEVIERIA 50-10 BOYNTON, FLORIDA

* Observations 5 days after treatment 28 Mar. 50

Treatment	Rate per acre	Injury to Sansevieria			Weed Kill		
		I	II	Av.	I	II	Av.
Shell 130	5 gal.	4	2	3.0	2	3	2.5
	10 "	5	4	4.5	3	3	3.0
	15 "	4	5	4.5	2	3	2.5
TCA	25 #	2	2	2.0	1	1	1.0
	50 #	2	2	2.0	1	1	1.0
	100 #	2	2	2.0	1	1	1.0
Sinox	1 gal.	2	3	2.5	2	3	2.5
	2 "	4	3	3.5	4	1	2.5
	4 "	4	4	4.0	3	2	2.5
DiNitro	1 gal.	2	2	2.0	1	2	1.5
	2 "	2	2	2.0	1	2	1.5
	4 "	2	2	2.0	1	2	1.5
2,4-D	0.5 #	2	2	2.0	1	1	1.0
	1.0 #	2	2	2.0	1	1	1.0
	2.0 #	1	2	2.0	1	1.	1.0
Areocyanate	5 #	2	2	2.0	2	2	2.0
	10 #	2	1	1.5	1	2	1.5
	15 #	2	2	2.0	2	2	2.0
Check		1	1	1.0	1	1	1.0

* Observations by J. Frank Joyner

1 - very light; 2 - light; 3 - medium; 4 - heavy; 5 - very heavy

DATA SHEET 2　　SANSEVIERIA 50-10　　BOYNTON, FLORIDA

*Observations six weeks after treatment　　5 May 50

Treatment	Rate	Injury to Sansevieria			Weed Kill		
		I	II	Av.	I	II	Av.
Shell 130	5 gal/a	4	3	3.5	2	1	1.5
	10 gal/a	4	5	4.5	2	4	3.0
	15 gal/a	5	4	4.5	5	3	4.0
TCA	25 #/a	3	2	2.5	3	3	3.0
	50 #/a	4	4	4.0	4	4	4.0
	100 #/a	5	5	5.0	4	5	4.5
Sinox	1 gal/a	1	2	1.5	1	2	1.5
	2 gal/a	3	2	2.5	2	2	2.0
	4 gal/a	4	3	3.5	3	3	3.0
DiNitro	1 gal/a	1	1	1.0	2	2	2.0
	2 gal/a	1	1	1.0	3	2	2.5
	4 gal/a	2	1	1.5	4	2	3.0
2,4-D	0.5 #/a	1	1	1.0	4	3	3.5
	1.0 #/a	1	1	1.0	4	4	4.0
	20 #/a	1	1	1.0	4	4	4.0
Areo cyanate	5 #/a	1	1	1.0	2	2	2.0
	10 #/a	1	1	1.0	2	2	2.0
	15 #/a	1	1	1.0	2	2	2.0
Check		1	1	1.0	1	1	1.0

* Observations by Charles C. Seale

1 - very light; 2 - light; 3 - medium; 4 - heavy; 5 - very heavy

DATA SHEET 3 SANSEVIERIA 50-10 Boynton, Florida

Data taken six weeks after treatment 5 May 50

Treatment	Rate/A	Kilograms of Injured Leaves			Average % Injured to Total Yield
		I	II	Sum	
Shell 130	5 gal.	1.3	2.6	3.9	35.5
	10 gal.	6.1	3.8	9.9	68.0
	15 gal.	4.0	3.3	7.3	60.5
				21.1	
TCA	25 #	1.8	1.1	2.9	28.5
	50 #	4.8	3.2	8.0	57.5
	100 #	4.6	4.6	9.2	77.5
				20.1	
Sinox	1 gal.	1.1	0.1	1.2	48.0
	2 "	1.3	1.1	2.4	30.5
	4 "	2.9	2.9	5.8	39.5
				9.4	
DiNitro	1 gal.	0.4	0.2	0.6	9.0
	2 "	0.4	0.1	0.5	9.0
	4 "	0.2	0.1	0.3	2.5
				1.4	
2,4-D	0.5 #	0.2	1.3	1.5	11.0
	1.0 #	0.6	0.7	1.3	8.5
	2.0 #	0.6	0.1	0.7	6.0
				3.5	
Areocyanate	5 #	0.1	0.1	0.2	1.5
	10 #	0.1	0.1	0.2	2.0
	15 #	0.1	0.1	0.2	2.0
				0.6	

ANALYSIS OF VARIANCE OF INJURED YIELD

Variation	DF	SS	V	F
Total	35	10399		
Replicate	1	73	73	2.11
Herbicides	5	7127	1425	41.31 **
Concentrations	2	888	444	12.86 **
Interaction	10	1724	172	5.00
Error	17	587	34	

**Highly Significant

MSD .05 of treatment sum is: 5.50

DATA SHEET 4 SANSEVIERIA 50-10 Boynton, Florida

Data taken six months after treatment 13 Sept. 50

Treatment	Rate per Acre	Plants per square foot I	II	Av.	Total
Shell 130	5 gal.	12	18	15.0	30
	10 gal.	14	8	11.0	22
	15 gal.	14	12	13.0	26
Herbicide mean					13.0
TCA	25 #	4	4	4.0	8
	50 #	2	3	2.5	5
	100 #	3	2	2.5	5
Herbicide mean					3.0
Sinox	1 gal.	17	11	14.0	28
	2 gal.	18	7	12.5	25
	4 gal.	14	8	11.1	22
Herbicide mean					12.5
DiNitro	1 gal.	13	9	11.0	22
	2 gal.	15	12	13.5	27
	4 gal.	13	7	10.0	20
Herbicide mean					11.5
2,4-D	0.5 #	11	15	13.0	26
	1.0 #	10	16	13.0	26
	2.0 #	8	10	9.0	18
Herbicide mean					11.7
Aero-Cyanate	5 #	13	13	13.0	26
	10 #	11	15	13.0	26
	15 #	15	13	14.0	28
Herbicide mean					13.3
Check		13	17	15.0	

ANALYSIS OF VARIANCE

Variation	DF	SS	V	F
Total	35	725		
Replicate	1	16	16.0	1.44
Herbicides	5	457	91.4	8.23**
Concentrations	2	19	9.5	.86
Interaction	10	45	4.5	.41
Error	17	188	11.1	

**Highly significant

MSD T.05 of herbicide means is 4.07

THE EFFECT OF SOME PREPLANTING TREATMENTS OF SOME WEED HERBICIDES IN THE CONTROL OF WEEDS AND ON THE GROWTH OF SANSEVIERIA TRIFASCIATA Prain.

By C. C. Seale, E. O. Gangstad, P. C. Ritty and J. F. Joyner

Sansevieria 50-20 Port Mayaca

OBJECT OF EXPERIMENT: A high quality cordage fiber may be obtained from sansevieria, but large scale production is difficult because the relatively slow growth of the plant makes weed control a difficult problem. Preliminary investigations on chemical control of weeds with high gallonage foliage sprays have shown that the plant will tolerate a relatively high concentration of herbicide of the 2,4-D type. Nitrophenol preparations in water did not seriously affect the plant but were not very effective in the control of weeds, particularly grass weeds Chlorinated phenols in oil solution and TCA seriously affected the plant as contact sprays. The effects of preplanting applications of herbicides on the sansevieria plant and the control of weeds were investigated in the following experiment.

ABSTRACT OF RESULTS: Treatments of preplanting applications of:

1. Control
2. 2,4-DAmine (Weedmaster 40) 3#/a in 60 gal. water
3. Isopropyl ester of 2,4,5-T 3#/a in 60 gal. water
4. 2,4-DAmine (Weedmaster 40) 1.5#/a plus TCA (Dow 90%) 15#/a in 225 gal. water per acre
5. TCA (Dow 90%) 30#/a in 225 gal. water
6. 2,D-3, 3#/a (Goodrich Chemical, non-volatile polyethylene glycol derivative of 2,4-D) in 60 gal. water
7. I,T-B 3#/a (Goodrich chemical, contact type) in 60 gal. pigment 1265 oil
8. Oktone 10#/a (Goodrich Chemical, contact type) in pigment 1265 oil, 60 gal./a
9. Maleic Hydrazide 3#/a (Naugatuck Chemical) in 60 gal. water
10. Isopropyl ester of 2,4-D, DuPont Lawn Weedkiller, 12.6% in 60 gal. water per acre

The sansevieria was not injured at levels applied under conditions of the experiment. Although a wide variation in distribution of weeds has reduced the significance of the treatments, a reasonably good control of weeds was obtained with TCA 30#/a. Treatments applied 3 days before a hurricane with high rains had little effect. Weeds were mostly annual about two-thirds broad leaf and one-third the grass types.

Data Sheet 1 Sansevieria 50-20 Port Mayaca

Treatment 16 Oct. 50. Observations after heavy hurricane rains, 20 days after treatments (a)

Treatment	I	II	III	Av.
Control	4	4	3	3.7
2,4-D	3	2	4	3.0
2-4-5,T	2	1	2	1.7
2,4-D/TCA	-	-	2	2.0
TCA	-	-	4	4.0
2,D-3	1	1	3	1.7
2,T-B	1	1	1	1.0
Oktone	2	2	1	1.7
MH	4	4	3	3.7
2,4-D Ester	2	2	1	1.7

Treatment 27 Oct. 50 (after hurricane rains, area adjacent to first treatment) Observations 20 Nov. 50, 24 days after treatment (b)

Treatment	I	II	III	Av.
Control	3	5	3	4.3
2,4-D	3	2	2	2.3
2,4,5-T	2	3	2	2.3
2,4-D/TCA	1	1	1	1.0
TCA	1	3	2	2.0
2,D-3	2	1	2.5	1.8
2,T-B	1	4	1	2.0
Oktone	1	1	3	1.7
MH	2	3	3.5	2.8
2,4-D Ester	1	2	2.5	1.8

(a) Observations by P. C. Ritty, Agronomist, Goodrich Chemical Co.
(b) Observations by C. C. Seale, Assoc. Agronomist, Everglades Experiment Station

1. Little or no weed growth
2. Slight weed growth
3. Moderate weed growth
4. Heavy weed growth
5. Very heavy weed growth

Data Sheet 2 Sansevieria 50-20 Port Mayaca

Dead plants per plot row, observations 7 May 51, 6 months after treatment, 5 months after planting

	I	II	III	Total	Percent Mortality
Control	0	0	1	1	1.66
2,4-D	0	0	0	0	0.00
2,4,5-T	1	1	0	2	3.33
2,4-D/TCA	2	0	2	4	6.66
TCA	0	0	1	1	1.66
2,D-3	0	3	1	4	6.66
2,TB	0	1	3	4	6.66
Oktone	1	0	0	1	1.66
MH	1	1	2	4	6.66
2,4-D Ester	1	1	0	2	3.33

Analysis of Variance

Variation	DF	SS	V	F
Total	29	104.37		
Replicates	2	0.87	.43	.01
Treatments	9	7.37	.82	1.54
Error	16	96.13	5.34	

REMARKS: Sansevieria plants were planted one month after treatments. Weed control treatments at levels applied did not have any significant effect on the mortality of sansevieria plants.

Data Sheet 3 Sansevieria 50-20 Port Mayaca

Sansevieria planted one month after treatment. Number of rhizomes per 10 plants of plot. Observations 7 May 51, 6 months after treatment.

Treatment	I	II	III	Mean
Control	4	7	6	5.6
2,4-D	8	5	7	6.7
2,4,5-T	3	4	7	5.3
2,4-D/TCA	8	5	3	5.3
TCA	7	3	6	5.3
2,D-3	8	1	2	3.7
2,T-3	4	9	9	7.3
Oktone	5	4	7	5.3
MH	7	5	4	5.3
2,4-D Ester	6	11	9	8.7
Average				5.8

Analysis of Variance

Variation	DF	SS	V	F
Total	29	153.5		
Replications	2	8.5	1.75	
Treatments	9	50.8	5.64	1.02
Error	18	99.2	5.51	

REMARKS: Treatments at levels and conditions applied have not substantially affected the growth of rhizomes. 2,D-3, a non-volatile polyethylene glycol derivative of 2,4-D, indicates some depression and 2,4-D Ester (isopropyl) indicates some stimulation.

Data Sheet 4 Sansevieria 50-20 Port Mayaca

Number of weeds per center row of plot. Observations 7 May 51, six months after treatment.

Treatment	I	II	III	Total
Control	63	16	28	107
2,4-D	31	14	20	65
2,4,5-T	35	5	11	51
2,4-D/TCA	27	2	11	40
TCA	3	4	3	10
2,D-3	16	33	15	64
2,T-B	18	22	7	47
Oktone	35	18	17	70
MH	34	20	24	78
2,4-D Ester	31	6	6	43

Analysis of Variance

Variation	DF	SS	V	F
Total	29	5,234		
Replicate	2	1,540	770.0	
Treatments	9	2,017	224.1	2.4
Error	10	1,677	93.2	

REMARKS: Area was not seriously infested with grass weeds, but best overall control was obtained with 30#/a TCA (Dow 90%), six months after treatment.

Outline Sansevieria 50-22 South Florida

Object: Study of minimum temperature recordings to indicate area or areas most satisfactory for growth of sansevieria.

Abstract of Results: The hours below 32°F. for a ten year period of 1941-1951 indicate that areas which have a low frequency of killing frost observed were, Iona, Delray Beach and Port Mayaca. Iona area is protected by the water mass of the Gulf on three sides. The Delray Beach area is protected by the warm waters of the Gulf Stream. The Port Mayaca area is protected by high ground and Lake Okeechobee.

The years 1941-42, 1946-47 and 1949-50 were relatively frost free. In 1943-44 and 1947-48, freezing temperatures were observed at all stations. In the 1950-51 season the cold was more severe at most locations.

Seventy percent of the areas reported temperatures below 32°F. for .1 hour, 70% of the years. Fifty percent of the areas reported a temperature below 32°F. for 1 hour or more 50% of the years. Thirty percent of the stations reported a temperature below 32°F. for 10 hours or more, 20% of the years.

The data indicates that sansevieria could be grown at least to a limited extent in the warmer areas without serious injury from frost.

Data Sheet 1   Sansevieria 50-22   South Florida

	Hours Below 32°F.									
	Years									
	41	42	43	44	45	46	47	48	49	50
Fort Pierce	0.0	16.8	4.8	6.0	0.0	10.3	4.2	12.8	3.8	31.1
Stuart	0.6	10.5	3.8	0.0	0.0	7.0	3.2	9.6	0.0	4.4
Hypoluxo	0.0	8.2	7.0	6.8	0.0	0.1	1.5	5.9	0.0	1.6
Delray Beach	0.0	0.2	0.0	0.0	0.0	0.1	1.3	0.0	0.0	0.0
Homestead	0.3	9.0	5.5	7.2	0.0	2.5	0.0	9.0	6.0	7.9
Indiantown #3	0.0	2.6	2.0	0.5	0.0	10.5	4.3	6.8	0.0	0.5
Port Mayaca	0.0	11.8	0.0	0.3	0.0	9.5	5.7	0.0	0.0	4.5
Belle Glade	6.7	9.5	9.8	8.5	2.8	12.1	3.3	7.0	3.0	13.7
Ellenton	0.5	14.5	14.5	17.9	2.0	11.4	8.9	1.3	1.3	26.9
Iona	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0
Frequency of areas below 32°F. per year	4	10	8	8	2	10	9	9	4	8

	Frequency, Years Below 32°F.		
Location	0.1 hr.	1 hr.	10 hr.
Fort Pierce	8	8	4
Stuart	7	6	1
Hypoluxo	7	4	0
Delray Beach	3	1	0
Homestead	8	3	0
Indiantown #3	7	5	1
Port Mayaca	5	4	1
Belle Glade	10	10	2
Ellenton	10	9	5
Iona	2	1	0

Data Sheet 2 Sansevieria 50-22 Belle Glade

Field observations 5 Jan. 50, 8 months stand, inches average height and frost injury

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
S. guineensis						
Av.	14.7	15.4	24.5	24.0	16.9	16.6
%		98.0		98.0		98.2
Av. %						98.1
S. longiflora						
Av.	21.0	19.3	22.7	21.3	22.8	20.9
%		91.9		93.8		91.7
Av. %						92.5
S. trifasciata						
Av.	17.5	17.5	16.9	15.3	19.0	18.5
%		100.0		90.5		97.4
Av. %						96.0
S. Laurentii						
Av.	17.9	16.2	19.4	19.2	17.6	17.0
%		90.2		99.0		96.6
Av. %						95.3

Remarks: Complete frost kill of exposed leaves.

Data Sheet 3 Sansevieria 50-22 Port Mayaca

Field observations 3 Jan. 51, 4 months stand, inches average height and frost injury.

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
	S. guineensis					
Av.	11.6	5.1	10.3	7.8	10.2	7.3
%		44.0		75.7		71.6
Av. %						64.3
	S. longiflora					
Av.	14.0	5.4	16.0	7.9	14.8	11.4
%		38.6		49.3		77.0
Av. %						55.0
	S. trifasciata					
Av.	8.2	3.2	9.9	5.3	11.4	6.4
%		39.0		53.5		56.1
Av. %						49.6
	S. Laurentii					
Av.	10.8	3.4	8.6	1.2	9.2	3.8
%		31.5		14.0		41.3
Av. %						28.9

Remarks: Plants seriously injured.

Data Sheet 4 Sansevieria 50-22 Indiantown

Field observations 3 Jan. 50, 8 month stand. Average height and frost injury in inches.

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
	S. guineensis					
Av.	21.9	10.7	22.3	10.2	20.2	11.9
%		48.9		45.7		58.9
Av. %						51.2
	S. longiflora					
Av.	15.5	2.2	20.2	4.3	24.4	3.2
%		14.2		21.3		13.1
Av. %						16.2
	S. trifasciata					
Av.	18.2	3.9	16.2	4.3	17.7	4.9
%		21.4		26.5		27.7
Av. %						25.2
	S. Laurentii					
Av.	12.1	0.1	14.3	1.4	14.6	0.4
%		8.2		9.8		6.2
Av. %						8.1

Remarks: Considerable injury to *S. guineensis*/

Data Sheet 5 Sansevieria 50-22 Boynton

Field trip 29 Dec. 50. J. F. Joyner and E. O. Gangstad. Height of plant and frost injury of leaf tip in inches.

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
	S. guineensis, 1 year stand, regrowth					
Av.	27.1	15.5	23.6	13.1	30.4	7.5
%		57.2		55.5		24.7
Av. %						45.8
	S. longiflora, 1 year stand, regrowth					
Av.	30.7	0.4	26.5	1.7	28.6	0.2
%		1.3		6.4		0.7
Av. %						2.8
	S. trifasciata, 1 year stand, regrowth					
Av.	30.7	0.4	28.6	0.2	28.5	1.7
%		1.3		0.7		6.0
Av. %						2.7
	S. Laurentii, 1 year stand, regrowth					
Av.	23.0	0.2	20.9	0.0	25.4	0.0
%		0.9		0.0		0.0
Av. %						0.3

Remarks: S. guineensis seriously injured.

Data Sheet 6 Sansevieria 50-22 Fort Lauderdale

Field trip 4 Jan. 50., J. F. Joyner and E. O. Gangstad. Average height and observed frost injury in inches of a 5 month stand of plants.

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
	S. Guineensis					
Av.	11.9	1.0	12.1	1.7	11.7	1.5
%		8.4		14.1		12.8
Av. %						11.8
	S. longiflora					
Av.	16.4	0.1	11.4	1.5	11.2	0.1
%		0.6		13.2		.9
Av. %						4.9
	S. trifasciata					
Av.	12.7	0.3	12.4	0.3	11.2	0.5
%		2.4		2.4		4.5
Av. %						3.1
	S. Laurentii					
Av.	13.5	0.1	13.0	0.1	10.1	0.2
%		0.7		0.8		2.0
Av. %						1.2

Remarks: Very little injury

Summary Sheet 1 Sansevieria 50-22 South Florida

	Below 32°F.		Percent Injury 1950		
Location	41-51	1950	guineensis	trifasciata	Laurentii
Belle Glade - Experiment Station	7.6	13.5	98.1	96.0	95.7
Port Mayaca - #1	3.2	4.5	64.3	49.6	28.9
Indiantown - Arrow Farms	3.2	0.5	51.2	25.2	8.1
Boynton (Hypoluxo)	2.3	1.6	45.8	2.7	0.3
Fort Lauderdale	0.5	0.0	11.8	3.1	1.6

Remarks: Degree or percent injury follows closely the duration of cold. Boynton and Fort Lauderdale are relatively free of frost. *S. guineensis* was seriously injured at Boynton while *S. trifasciata* showed considerable resistance.

Sansevieria 50-23 Boynton

Object of Study: To observe cultural conditions as affecting frost injury of sansevieria.

Abstract of Results: Young actively growing plants are quite sensitive to frost. There was little injury to the plant where the area was clean cultivated or completely covered with dried grass mulch but all exposed leaves were frosted where there was a partial cover.

An artificial cover and a canopy of hairy indigo protected a 2-year stand, but where grass and weeds were allowed to grow in the sansevieria, there was serious injury from frost.

Well fertilized, clean cultivated plots showed good resistance to frost. Clean cultivation and proper fertilization are considered the only practical methods for field application.

Data Sheet 1 Sansevieria 50-23 Boynton

S. trifasciata, six months old, moderate fertilization, clean cultivation

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	11	1	10	1	10	0
2	10	0	10	1	10	0
3	10	0	10	0	10	0
4	10	0	10	0	9	0
5	10	0	10	0	9	0
6	9	0	10	0	9	0
7	9	0	9	0	9	0
8	9	0	9	1	8	0
9	8	0	8	1	8	0
10	7	0	8	0	8	0
Av.	9.3	0.1	9.5	0.4	9.0	0.0
%		1.1		4.2		0.0
Av. %						1.8

Partial Cover with Dried Grass Mulch

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	10	9	11	6	13	7
2	10	4	9	6	11	6
3	10	0	9	6	10	9
4	9	7	9	5	9	6
5	9	6	9	5	8	4
6	9	5	8	5	8	4
7	9	5	8	5	8	4
8	8	4	7	5	7	4
9	7	4	7	4	7	3
10	7	4	7	3	6	3
Av.	8.8	4.8	8.4	5.0	8.7	5.0
%		54.5		59.5		57.5
Av. %						57.2

Complete Cover with Dried Grass Mulch

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	11	3	10	2	12	0
2	11	0	10	0	11	3
3	10	1	9	2	10	2
4	9	0	9	0	10	1
5	9	0	8	1	9	0
6	9	0	8	-	9	0
7	8	1	8	0	9	0
8	8	0	7	0	8	0
9	8	0	7	0	7	0
10	7	0	6	0	7	0
Av.	9.0	0.5	8.2	0.5	9.2	0.6
%		5.6		6.1		6.5
Av. %						6.1

Data Sheet 2 Sansevieria 50-23 Boynton

S. trifasciata - 2 year stand (weeds and grass)

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	15	6	21	14	17	12
2	20	13	15	9	20	15
3	18	10	17	12	18	15
4	17	10	16	10	16	11
5	16	11	17	13	19	13
6	16	11	14	9	16	13
7	13	10	15	10	20	14
8	16	11	14	9	18	14
9	21	15	13	9	19	13
10	17	13	13	8	19	14
Av.	16.9	11.0	15.5	10.3	18.2	13.4
%		65.1		66.4		73.6
Av. %						68.4

Indigo cover crop - no grass or weeds

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	39	0	37	0	39	0
2	36	0	36	1	39	0
3	36	0	36	1	36	0
4	35	2	36	0	33	2
5	31	1	35	0	31	0
6	31	0	35	0	31	0
7	31	0	33	0	30	0
8	30	0	31	1	30	0
9	30	0	31	1	28	0
10	27	0	28	0	26	0
Av.	32.6	0.3	33.8	0.4	32.3	0.2
%		0.9		1.2		0.6
Av. %						0.9

Artificial cover - no grass or weeds

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	33	0	37	0	33	0
2	31	0	36	0	32	0
3	29	0	35	0	28	0
4	29	0	32	0	28	0
5	29	0	31	0	28	0
6	28	0	30	0	27	0
7	28	0	30	0	27	0
8	26	0	29	0	25	0
9	28	0	28	0	25	0
10	28	0	25	0	25	0
Av.	29.1	0.0	31.3	0.0	27.8	0.0
%		0.0		0.0		0.0
Av. %						0.0

Data Sheet 3 Sansevieria 50-23 Boynton

S. trifasciata, 2 year stand, moderate fertilization, clean cultivation. No grass or weeds.

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	31	1	32	1	34	0
2	31	1	29	1	28	2
3	31	0	29	2	28	1
4	30	0	28	1	28	0
5	29	0	26	0	27	0
6	27	1	26	0	26	2
7	25	5	25	3	25	1
8	25	1	24	0	24	0
9	25	1	22	0	22	0
10	21	3	21	0	22	0
Av.	27.5	1.3	26.2	0.8	26.4	0.4
%		4.7		3.1		1.5
Av. %						3.1

3 year stand (No weeds or grass)

	I		II		III	
	Height	Injury	Height	Injury	Height	Injury
1	52	2	53	3	53	1
2	49	2	48	1	51	1
3	47	0	43	2	48	1
4	46	1	43	1	47	1
5	45	0	43	1	46	1
6	42	0	42	0	43	2
7	41	0	39	1	42	0
8	37	1	38	0	41	1
9	37	0	36	0	41	0
10	37	0	36	0	37	0
Av.	43.3	0.6	42.1	0.9	44.9	0.8
%		1.4		2.1		1.8
Av. %						1.8

5 year stand (No weeds or grass)

	Height	Injury	Height	Injury	Height	Injury
1	62	0	65	12	62	6
2	53	0	60	1	60	10
3	50	0	54	6	56	1
4	47	4	53	0	55	4
5	46	0	47	1	52	3
6	45	0	47	0	51	0
7	45	0	46	0	48	3
8	44	2	45	0	44	3
9	42	1	45	0	43	0
10	42	1	39	4	43	0
Av.	47.6	0.8	50.1	2.4	51.2	3.0
%		1.7		4.8		5.9
Av. %						4.1

Data Sheet 4   Sansevieria 50-23   Boynton

Frost injury of 2 year stand of *S. trifasciata*, NPK trial

	K	#/a	0	50	100
N - 0	P	0	65.0	58.1	36.4
		50	70.4	62.2	58.6
		100	48.1	66.3	64.9
N - 75	P	0	56.0	39.7	42.3
		50	39.6	57.7	32.3
		100	57.6	54.3	36.2
N - 150	P	0	31.8	46.3	9.2
		50	55.9	42.3	18.1
		150	67.3	10.9	19.2

Summary

K		0	50	100
N	0	61.2	62.2	53.3
	75	54.0	50.5	36.9
	150	51.6	33.1	12.1*

Remarks: *High N & K fertility reduced frost injury.

Outline Sansevieria 50-24 Boynton

1. Expt.: Annual fiber yield

2. Location: Winchester Farm, Boynton

3. Soil: Leon fine sand

4. Variety: S. trifasciata

5. Treatment: a. Whole plants

   b. Leaf cuttings

6. Design: Observation plots

7. Abstract of Results: Relatively high yields of fiber were obtained under conditions favorable for growth. The yield depends largely on the density of stand. Growth in height proceeds as a secondary phase after the stand becomes dense enough to partially shade the base of the petiole. The average increment yield of fiber after the first year was about 2000 lbs./acre of fiber.

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Summary Sheet 1 Sansevieria 50-24
Data Sheet 5 Sansevieria 47-3
Observation plots, 1951 harvest, cut by hand

Boynton

Average Height of Stand	Leaves per Sq. Ft.	Cal. Acre Yield 1000#/a Grn. Wt. -20"	/20"	% Dry Fiber	Dry Fiber #/a/20"	Annual Fiber #/a/20"
6 year rootstock; first harvest; 6 year growth						
48	92	45	--	--	13,803	2,300
20-36"	--	--	449	1.45	6,510	
36" plus	--	--	390	1.87	7,293	
6 year rootstock; second harvest; 2 year growth						
43	88	56	--	--	3,482	1,741
20-36"	--	--	79	1.60	1,264	
36" plus	--	--	132	1.68	2,218	
6 year rootstock; second harvest, 1 year growth						
30	55	31	35	1.43	500	500
4 year rootstock; first harvest; 4 year growth						
43	85	86	--	--	9,113	2,273
20-36"	--	--	247	1.70	4,199	
36" plus	--	--	260	1.89	4,914	
4 year rootstock; second harvest; 2½ years growth						
44	96	52	--	--	6,669	2,667
20-36"	--	--	239	1.51	3,609	
36" plus	--	--	150	2.04	3,060	
4 year rootstock; second harvest; 2 year growth						
45	71	51	--	--	4,128	2,064
20-36"	--	--	163	1.39	2,266	
36" plus	--	--	104	1.79	1,862	
4 year rootstock; third harvest; 1 year growth						
20	52	84	--	1.01	--	

Area of harvest, approximately 10 sq. ft.

Summary Sheet 2 Sansevieria 50-24 Boynton
Observation plots, planted and cut by hand

Average Height of Stand	Leaves per Sq. Ft.	Tot. Gn. Wt. 1000#/a /20"	Average Percent Dry Fiber	Dry Fiber #/a/20"	Annual Yield #/a/20"
I Whole plants, approx. 2 plants per sq. ft.					
a) First harvest, 3 year growth (1948 harvest)					
40	43	512	1.48	7,475	2,491
First harvest, 4 year growth (1949 harvest)					
57	89	873	1.44	12,571	3,190
First harvest, 5 year growth (1950 harvest)					
55	93	1004	1.57	15,711	3,143
First harvest, 6 year growth (1951 harvest)					
48	92	839	1.64	13,803	2,300
b) Second harvest, 2 year growth (1951 harvest)					
43	88	211	1.65	3,482	1,741
II Leaf cuttings approx. 4 cuttings per sq. ft.					
a) First harvest, 2 year growth (1949 harvest)					
43	73	205	1.56	3,207	1,603
First harvest, 3 year growth (1950 harvest)					
50	--	508	1.41	7,175	2,391
First harvest, 4 year growth (1951 harvest)					
43	85	507	1.80	9,113	2,273
b) Second harvest, 2 year growth (1951 harvest)					
45	71	267	1.55	4,128	2,064

The above yields are probably considerably higher than would be obtained under commercial conditions because the plots were planted at a high rate per acre and were cut by hand with little loss in the stubble.

Summary Sheet 3 Sansovieria 50-24 Boynton
Data Sheet 6 47-3

Net Loss of Fiber Due to Length of Stubble

S. trifasciata			S. guineensis		
Total Leaf Length Inches	Length of Stubble Recovered	Percent Loss of Fiber	Total Leaf Length Inches	Length of Stubble Recovered	Percent Loss of Fiber
20 inches	1	5.53	20 inches	1	2.92
	2	9.70		2	8.65
	3	17.30		3	12.65
	4	21.90		4	21.10
30 inches	1	3.49	30 inches	1	2.52
	2	7.40		2	5.45
	3	11.72		3	9.44
	16.67			4	15.60
40 inches	1	2.28	36 inches	1	2.51
	2	4.68		2	4.83
	3	7.25		3	8.95
	4	11.98		4	13.25

Interpolated Values

50	4	9.50
60	4	8.50

Data supplied by Mills H. Byrom

Summary Sheet 4 Sansevieria 50-24 Boynton

Average Height of Stand	Annual Yield of Fiber	Percent Loss in 4" Stubble	Adjusted Annual Yield
I Whole Plants - 2 Plants per sq. ft.			
a1 First harvest, 3 year growth (1948 harvest)			
40	2491	11.98	2193
a2 First harvest, 4 year growth (1949 harvest)			
57	3190	9.25	2895
a3 First harvest, 5 year growth (1950 harvest)			
55	3143	9.25	2852
b1 Second harvest, 2 year growth (1951 harvest)			
43	1741	11.98	1532
II Leaf Cuttings - 4 Cuttings per sq. ft.			
a1 First harvest, 2 year growth (1949 harvest)			
43	1603	11.98	1411
a2 First harvest, 3 year growth (1950 harvest)			
50	2391	9.50	2164
a3 First harvest, 4 year growth (1951 harvest)			
43	2273	11.98	2001
b1 Second harvest, 2 year growth (1951 harvest)			
45	2064	11.98	1817

Outline Sansevieria 50-16 Belle Glade

1. Expt.: Fiber quality tests of NPK fertility trial on Leon fine sand at Boynton, Fla.

2. Methods: Cordage fiber tests as applied at Belle Glade Testing Laboratory for tensile strength, knot strength, abrasion resistance and flex life.

3. Summary of Results: On this soil type, application of Nitrogen significantly increased the strength of the fiber. P & K had no effect (Data sheets 1, 2). The knot strength (Data sheets 3, 4) was not affected by NPK treatments. The abrasion resistance was significantly higher for the NO treatments (Data sheet 5). This difference is largely due to 0-0-1 and 0-1-1 treatments where growth was unsatisfactory for yield of fiber. Flex life was not significantly affected by NPK treatments, although there is a consistent trend for low nitrogen and high potassium to increase flex life. This effect is thought to be due to the retarded growth observed in such treatments.

Data Sheet 1 Sansevieria 50-16 Belle Glade

Tensile Strength 1/2 inch span

Treat. N-P-K	A	B	Tot.
0-0-0	86	67	153
0-0-1	77	70	147
0-0-2	71	75	146
0-1-0	71	67	138
0-1-1	78	75	153
0-1-2	72	70	142
0-2-0	73	75	148
0-2-1	74	74	148
0-2-2	70	81	151
1-0-0	79	72	151
1-0-1	76	76	152
1-0-2	85	78	163
1-1-0	70	77	147
1-1-1	80	78	158
1-1-2	79	77	156
1-2-0	80	75	155
1-2-1	86	83	169
1-2-2	82	82	164
2-0-0	77	71	148
2-0-1	82	83	165
2-0-2	88	75	163
2-1-0	77	83	160
2-1-1	83	80	163
2-1-2	87	88	175
2-2-0	82	84	166
2-2-1	83	71	154
2-2-2	78	71	149

N	0	1	2
PO	446	466	476
1	433	461	498
2	447	488	469
	1326	1415	1443

P	0	1	2
KO	452	445	469
1	464	474	471
2	472	473	464
	1388	1392	1404

K	0	1	2
NO	439	448	439
1	453	479	483
2	474	482	487
	1366	1409	1409

Analysis of Variance

Source	DF	SS	V	F
Total	53	1621		
Blocks	5	211	42	2.00
N	2	414	207	9.85**
P	2	7	3	0.14
K	2	68	34	1.61
NP	4	158	40	1.90
NK	4	61	15	0.71
PK	4	44	11	0.52
Error	30	657	21	

**Highly significant

Data Sheet 2   Sansevieria 50-16   Belle Glade

Tensile Strength, lbs. per sq. in.

Treat.	A	B	
000	55	48	103
001	49	50	99
002	47	50	97
010	46	48	94
011	49	48	97
012	47	47	94
020	50	50	100
021	48	52	100
022	50	51	101
100	52	47	99
101	49	49	98
102	55	52	107
110	43	53	96
111	51	51	102
112	49	48	97
120	51	54	105
121	56	56	112
122	52	54	106
200	50	46	96
201	53	52	105
202	54	50	104
210	48	52	100
211	51	54	105
212	58	56	114
220	50	55	105
221	52	49	101
222	48	55	103
	1363	1377	2740
	69,089	70,449	278,702

	N0	N1	N2
K0	297	300	301
K1	296	312	311
K2	292	310	321
	885	922	933

	P0	P1	P2
N0	299	285	301
N1	304	295	323
N2	305	319	309
	908	899	933

	K0	K1	K2
P0	298	302	308
P1	290	304	305
P2	310	313	310
	898	919	923

Analysis of Variance

Source	DF	SS	V	F
Total	53	508		
Blocks	5	71	1.4	0.17
N	2	70	35.0	4.32 *
P	2	34	17.0	2.09
K	2	19	9.5	1.17
NK	4	30	7.5	0.92
NP	4	27	6.8	0.83
PK	4	14	3.5	0.43
Error	30	243	8.1	

*Significant

Data Sheet 3 Sansevieria 50-16 Belle Glade
Knot Strength, 1000 lbs. to break per sample

N-P-K	A	B	Total
0-0-0	22	20	42
0-0-1	17	19	36
0-0-2	18	23	41
0-1-0	16	20	36
0-1-1	20	18	38
0-1-2	18	18	36
0-2-0	17	17	34
0-2-1	19	20	39
0-2-2	16	18	34
1-0-0	17	17	34
1-0-1	22	17	39
1-0-2	21	21	42
1-1-0	18	23	41
1-1-1	22	18	40
1-1-2	22	17	39
1-2-0	22	19	41
1-2-1	22	16	38
1-2-2	21	18	39
2-0-0	21	18	39
2-0-1	22	17	39
2-0-2	20	18	38
2-1-0	18	17	35
2-1-1	22	17	39
2-1-2	23	20	43
2-2-0	19	17	36
2-2-1	18	16	34
2-2-2	19	21	40

N	0	1	2
PO	119	115	116
1	110	120	117
2	107	118	110
	336	353	343

P	0	1	2
KO	115	112	111
1	114	117	111
2	121	118	113
	350	347	335

K	0	1	2
NO	112	113	111
1	116	117	120
2	110	112	121
	338	342	352

Sub-blocks	A	B
1	181	170
2	183	170
3	168	160

Analysis of Variance

Source	DF	SS	V	F
Total	53	238		
Blocks	5	41	8	1.60
N	2	8	4	0.80
P	2	7	3	0.60
K	2	6	3	0.60
NP	4	13	3	0.60
NK	4	8	2	0.40
PK	4	3	1	0.20
Error	30	152	5	

Data Sheet 4 Sansevieria 50-16 Belle Glade
Knot Strength, 1000 lbs. per square inch

N-P-K	A	B	Total
0-0-0	13	12	25
0-0-1	11	11	22
0-0-2	12	14	26
0-1-0	9	12	21
0-1-1	13	11	24
0-1-2	11	10	21
0-2-0	10	10	20
0-2-1	12	12	24
0-2-2	10	12	22
1-0-0	10	10	20
1-0-1	14	10	24
1-0-2	13	13	26
1-1-0	12	14	26
1-1-1	13	11	24
1-1-2	14	11	25
1-2-0	14	11	25
1-2-1	13	10	23
1-2-2	13	12	25
2-0-0	14	11	25
2-0-1	13	13	26
2-0-2	13	11	24
2-1-0	11	11	22
2-1-1	14	11	25
2-1-2	15	12	27
2-2-0	11	10	21
2-2-1	13	10	23
2-2-2	12	13	25

N	0	1	2
PO	73	70	75
1	66	75	74
2	66	73	69
	205	218	218

P	0	1	2
KO	70	69	66
1	72	73	70
2	76	73	72
	218	215	208

K	0	1	2
NO	66	70	69
1	71	71	76
2	68	74	76
	205	215	221

Sub-blocks	A	B
1	115	106
2	113	103
3	105	99

Analysis of Variance

Source	DF	SS	V	F
Total	53	111		
Blocks	5	21	4	2.00
N	2	7	3	1.50
P	2	3	1	0.50
K	2	8	4	2.00
NP	4	8	2	1.00
NK	4	2	.5	0.25
PK	4	1	.2	0.10
Error	30	61	2	

Data Sheet 5 Sansevieria 50-16 Belle Glade
Abrasion resistance (shear), 1000 cycles to failure

N-P-K	A	B	Total
0-0-0	2.0	0.7	2.7
0-0-1	9.4	3.9	13.3
0-0-2	1.0	0.8	1.8
0-1-0	1.1	3.3	4.4
0-1-1	7.9	6.3	14.2
0-1-2	0.5	5.7	6.2
0-2-0	2.7	4.2	6.9
0-2-1	1.5	0.4	1.9
0-2-2	2.9	1.3	4.2
1-0-0	0.8	1.4	2.2
1-0-1	1.2	1.3	2.5
1-0-2	1.2	1.4	2.6
1-1-0	0.3	0.7	1.0
1-1-1	2.2	0.8	3.0
1-1-2	3.1	1.2	4.3
1-2-0	2.4	1.8	4.2
1-2-1	0.3	1.4	1.7
1-2-2	0.7	1.0	1.7
2-0-0	0.9	5.6	6.5
2-0-1	1.1	1.1	2.2
2-0-2	0.8	1.1	1.9
2-1-0	2.5	3.9	6.4
2-1-1	1.1	0.4	1.5
2-1-2	0.6	1.5	2.1
2-2-0	1.7	2.0	3.7
2-2-1	1.6	0.7	2.3
2-2-2	1.4	0.9	2.3

N	0	1	2
PO	17.8	7.3	10.6
1	24.8	8.3	10.0
2	13.0	7.6	8.3
	55.6	23.2	28.9

P	0	1	2
KO	11.4	11.8	14.8
1	18.0	18.7	5.9
2	6.3	12.6	8.2
	35.7	43.1	28.9

K	0	1	2
NO	14.0	29.4	12.2
1	7.4	7.2	8.6
2	16.6	6.0	6.3
	38.0	42.6	27.1

Sub-blocks	A	B
1	13.7	12.3
2	18.0	24.2
3	21.2	18.3

Analysis of Variance

Source	DF	SS	V	F
Total	53	19,265		
Blocks	5	1,108	221	0.85
N	2	3,324	1,662	6.44**
P	2	560	280	1.08
K	2	704	352	1.36
NP	4	670	167	0.64
NK	4	3,508	877	3.39*
PK	4	1,629	407	1.57
Error	30	7,762	258	

*Significant
**Highly Significant

Data Sheet 6 Sansevieria 50-16 Belle Glade

Flex -- 1000 cycles to failure

Treat. N-P-K	A	B	Tot.
0-0-0	7	3	10
0-0-1	13	8	21
0-0-2	13	6	19
0-1-0	8	19	27
0-1-1	14	4	18
0-1-2	7	8	15
0-2-0	18	3	21
0-2-1	13	10	23
0-2-2	5	10	15
1-0-0	6	6	12
1-0-1	14	5	19
1-0-2	8	3	11
1-1-0	15	4	19
1-1-1	11	6	17
1-1-2	9	8	17
1-2-0	12	17	29
1-2-1	5	4	9
1-2-2	4	7	11
2-0-0	11	4	15
2-0-1	9	9	18
2-0-2	6	3	9
2-1-0	13	9	22
2-1-1	11	4	15
2-1-2	5	6	11
2-2-0	11	6	17
2-2-1	5	12	17
2-2-2	12	4	16

N	0	1	2
PO	50	42	42
1	60	53	48
2	59	49	50
	169	144	140

P	0	1	2
KO	37	68	67
1	58	50	49
2	39	43	42
	134	161	158

K	0	1	2
NO	58	62	49
1	60	45	39
2	54	50	36
	172	157	124

Analysis of Variance

Source	DF	SS	V	F
Total	53	899		
Blocks	5	217	43	
N	2	27	13	0.86
P	2	24	12	0.80
K	2	67	33	2.20
NP	4	2	0.5	0.03
NK	4	17	4	0.26
PK	4	89	22	1.46
Error	30	456	15	

Outline Sansevieria 50-1 Indiantown

1. Expt.: Cultural practice of field planting, S. guineensis
2. Location: Troop Farm, Indiantown
3. Soil: Light sandy loam
4. Variety: S. guineensis
5. Treatment:

Cover Crops	Herbicides
a. Sunflowers	a. Dow Selective
b. Black eye cowpeas	b. Aerocyanate
c. Valentine beans	c. 2,4-D Amine
d. Bunch butter beans	d. TCA
e. Shallu	e. Check
f. Crowder peas	f. Weeded and hoed
g. Conch peas	

6. Design: Field planting, 2½ acre plot of S. guineensis, test plots approx. 1/10 acre

7. Abstract of Results: Cover crops and herbicides used did not control perennial grass weeds that became established shortly after planting. Weed competetion greatly reduced the growth of the sansevieria. Sansevieria guineensis was severely injured at Indiantown by frost, December 1950.

Outline Sansevieria 50-6 Indiantown

1. Expt.: Cultural practice of field planting of *S. trifasciata*

2. Soil: Light fine sand

3. Variety: *S. trifasciata*

4. Treatment: (a) Clean cultivation by garden tractor, hoeing and hand weeding; (b) Cover crops, velvet beans, sesbania, crotalaria spectablis, hairy indigo, check, CMU 15#/a (12# active)

5. Design: Field planting, (a) 1 acre; (b) 1/6 acre

6. Results: Weed control of one acre for one year required 1039 man hours weeding and hoeing and 9 cultivations. Plants increased at only 2/3 expected rate, probably due to disturbance of the plant by continual weeding operations. Sesbania tolerated the high water conditions and gave good cover. CMU at 15#/a (12# active) gave excellent weed control with little injury to the sansevieria

Data Sheet 1 Sansevieria 50-6 Indiantown

Field notes and observations. July 1950 planting, one acre, *S. trifasciata*, Indiantown.

7-10 July 50. Land, one acre, prepared for planting. Relatively free of weeds. Few patches of Bermuda. Disced 3 times and smoothed by engineers.

11-17 July 50. Plants dug at Boynton from leaf cutting nursery about 18 months old, area approximately 1/5 acre, about 70 crates, 400 plants each, 25-26 thousand plants.

18 July 50. Planted with engineers (Mr. Byrom's planter) 21 inch rows, 12 to 18 inches apart in the row, approximately 25,000 plants per acre.

19-29 July 50. Various attempts to cultivate with mechanical methods. Rows too irregular for multiple row cultivator. Spacing unsatisfactory for three wheel tractor. Necessary to use single row garden tractor

Data Sheet 2 Sansevieria 50-6 Indiantown

Field notes and observations. Treatment a

31 July 50. First cultivation with garden tractor.

14 Aug. 50. Second cultivation. Very few weeds, mostly small broad leaf types, fairly well controlled by cultivation.

2 Oct. 50. Third cultivation. Few weeds. Fairly well controlled by cultivation. Grass weeds in row beginning to develop.

9-23 Oct. 50. First hoeing. Estimated 91 man hours actual working time.

8-15 Nov. 50. Field fertilized and replanted. Because of irregularity of rows, many plants were dug up by the cultivator.

26 Dec. 50. Fourth cultivation. Weeds no longer controlled by cultivation.

2-11 Jan. 51. Second hoeing, estimated 108 man hours.

31 Jan. 51. Fifth cultivation. Bermuda grass, water grass and crab grass too well established to remove easily by cultivation.

5-12 Feb. 51. Third hoeing, 126 man hours. Bermuda grass impossible to irradicate by hoeing or weeding. Spread over most of the field.

26 Feb. 51. Sixth cultivation.

12-29 Mar. 51. Fourth hoeing, 153 man hours.

4 Aprl. 51. Seventh cultivation.

25 Apr. 51. Eighth cultivation.

7-21 May 51. Sixth hoeing, 226 man hours.

14 May 51. Ninth cultivation.

2-7 June 51. Seventh hoeing, 335 man hours.

Data Sheet 3 Sansevieria 50-6 Indiantown

Field notes and observations, 1951

7-9 June 51. Fertilized with 1000#/a of 12-8-10. Planted 1/6 acre each velvet beans, sesbania, crotalaria, hairy indigo and check.

9 July 51. CMU 15#/a (12#/a active) applied by small garden tractor sprayer.

4 Aug. 51. CMU weed control plots free of weeds. Velvet beans - poor growth. Sesbania - good growth. Crotalaria and hairy indigo - very poor growth. Area under water much of time. Sesbania and CMU satisfactory treatments.

2 Oct. 51. Second area treated with CMU at rate of 10#/a active. First strip clean of weeds, slight injury noted.

12 Dec. 51. Fair weed control in the sesbania and velvet beans and good growth of sansevieria. Very good weed control in CMU treatments and good growth of sansevieria. Poor weed control in check area and poor growth of sansevieria. Perennial grass weeds, mostly Bermuda grass.

Field notes and observations, 1952

3-7 Mar. 52. Old stubble of sesbania removed and area fertilized with 500#/a 12-8-8; 1/2 Uramon, 1/4 $NaNO_3$ and 1/4 $(NH_4)_2So_4$ nitrogen and superphosphate and murate of potash.

15 May 52. Area sprayed with 10#/a (8# active) CMU. This treatment was not completely effective when Bermuda was well established, but did give good control of grass weeds without injury to sansevieria.

15 Oct. 52. Area fertilized with 500# 12-8-8 with 1/2 uramon, 1/4 nitrate, 1/4 calcium cyanamide, phosphate as basic slag and sulfate of potash.

15 Dec. 52. Observed that weeds were under good control, good growth and color. Very little or no frost injury. Limited growth in height at this stage of development.

CHEMICAL WEED CONTROL IN SANSEVIERIA WITH CMU (PARA CHLOROPHENYL DIMETHYL UREA)[†]

by

E. O. Gangstad, C. C. Seale, J. F. Joyner & J. B. Pate

Object of Experiment: Because sansevieria has a relatively slow rate of growth, weed competition is a major problem in the culture of the plant for production of fiber. Mechanical cultivation is not effective for control of weeds within the row and cannot be practiced after the plants begin to fill in between the rows.

Abstract of Results: On sandy soils, pre-emergence treatment with CMU at rates of 3-5 lbs. active ingredient per acre in 100 gallons of water gave good control of weeds for a period of 5-6 months. In contrast, post-emergence applications to relatively heavy growths of weeds at rates of 7 to 10 lbs. active ingredient per acre gave good weed control for 3-4 months.

At rates above 10# per acre, the sansevieria was injured but most of the plants recovered in 3 to 4 months.

These higher rates of application are required on organic soils or under conditions of extremely high rainfall.

For best results, the chemical should be applied at the beginning or near the end of the rainy season when the rainfall is moderate but not excessive.

[†] Experimental weedicide supplied through the courtesy of Dale E. Wolf, Grasselli Chemicals Department, DuPont de Nemours & Co.

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Outline　　Sansevieria 51-13　　Indiantown

7 May 51, revised 23 May 51

1. Expt.: Chemical weed control

2. Location: Indiantown, Troop Farm

3. Soil: Light loam sand

4. Variety: S. trifasciata

5. Treatment: 51-13a 23 May 51
    a. TCA 50#/a (Na trichloracetate, Dow 60%)
    b. MH 30#/a (Maleic Hydrazide, Naugatuck Chemical 30%)
    c. CMU 10#/a (Parachlorophenyl-1,1-dimethylurea 80% DuPont Experimental)
    d. Check

Field trial with covered sprayer on row middle, two, two row replicate
Treatment: 51-13b 9July 51
    a. Check
    b. 5#/a CMU (80%)
    c. 10#/a CMU (80%)
    d. 15#/a CMU (80%)

Field trial two three row replicate
Treatment: 51-13c 19 July 51
    a. Check
    b. 4#/a (active)
    c. 7#/a
    d. 10#/a
    e. 13#/a

Field trial two three row replicates

Data Sheet 1 Sansevieria 51-13a Indiantown

Revised 23 May 51
Observation 3 July 51, six weeks after treatment, treatment 23 May 51
(No. weeds per 3 sq. ft. plot, taken at random from row numbers at every 100 feet of tow, south to north)

	Check			MH			TCA			CMU		
Samples	a	b	T	a	b	T	a	b	T	a	b	T
1	8	54	62	0	68	68	13	27	40	0	2	2
2	17	87	104	2	90	92	8	20	28	0	1	1
3	15	60	75	5	43	48	5	9	14	0	0	0
4	9	82	91	9	32	41	6	24	30	0	1	1
5	15	74	89	10	38	48	12	9	21	0	0	0
6	33	28	61	8	15	23	31	0	31	0	3	3
Total	97	385	482	34	286	320	75	89	164	0	7	7
Difference						162			318			475
% Control						34			65			98

a) Broad leaf weeds, about 75% purslane
b) Grass weeds, about 50% Bermuda

REMARKS Fair weed control with TCA. Good control with CMU. Little or no control with MH.

Data Sheet 1 Sansevieria 51-13b Indiantown

Green weight in oz. of weeds per plot, 5 x 5 ft. sq. (25 sq. ft.)
Observations 1 Aug. 51, 12 days after treatment

Treatment	I	II	III	IV	Total	% Weed Control
Control	68	54	59	51	232	
CMU 4#/a (active)	14	15	16	11	56	75
7#/a	9	6	7	5	27	88
10#/a	8	7	4	7	26	89
13#/a	6	4	7	2	19	91
	165	86	93	76	360	

Analysis of Variance

Source	DF	SS	V	F
Total	19	8414		
Replicate	3	1752	577	4.9
Treatment	4	5265	1316	11.2
Error	12	1417	118	

REMAKRS: A moderate infestation of weeds were present uniformly over area before treatment. The weeds of the treatments were severely injured. From visual observations, the 4#/a rate, although giving considerable control, was not adequate to kill the Bermuda grass. At this date, differences between the 7, 10 and 13 pound rate were very slight, but probably somewhat greater than indicated by the percent control.

Summary Sheet 1 Sansevieria 51-13 Indiantown

Observations 29 Oct. 51, Approx. 6 months after treatment.

Sansevieria 51-13a; treatment applied 23 May 51

#/acre (Active)	I	II	Av.	% Control
(1) MH (10#a)	5.0	5.0	5.0	Nil
(2) TCA (19#a)	5.0	5.0	5.0	Nil
(3) CMU (8#a)	3.5	4.0	3.7	35

Remarks: CMU treatment effective for about 5 months in these plots.
TCA, for about 2 months

Observations 6 Nov. 51, approx. 5 months after treatment.
Sansevieria 51-13b: treat. 9 July 51, post-emergence.

#/a Active CMU	I	II	Av.	% Control
(1) Check	5.0	5.0	5.0	0
(2) 4#/a	3.5	2.5	3.0	50
(3) 8#/a	2.0	3.0	2.5	60
(4) 12#/a	1.5	1.0	1.3	85

Remarks: 12# rate effective, slight injury to sansevieria.

Observations 6 Nov. 51, approx. 4 months after treatment.
Sansevieria 51-13c: treat. 19 July 51, pre-emergence

#/a Active AMU	I	II	Av.	% Control
Check	5.0	5.0	5.0	0
4#/a	1.5	2.0	1.7	75
7#/a	1.0	1.0	1.0	90
10#/a	0.0	0.0	0.0	100
13#/a	0.0	0.0	0.0	100

Remarks: No injury to sansevieria at any rate. CMU applied about one month after transplanting sansevieria; plants not actually growing at time of application.
Tomato plants survived in treat. 4, 13b, after third month.

Summary Sheet 2 Sansevieria 51-13 Indiantown
Observations 6 Nov. 51

(1) No injury noted in 51-13a
(2) Approx. 15% of plants in 12#/a treatment of 51-13b showed some sign of injury. About 1% died and the rest showed good signs of recovery.
(3) No apparent injury to plants in 51-13C, but trends indicate 13#/a reduced rate of growth.

# Active CMU		Plants per 100 Row Foot			Rhizomes per 100 Row Foot		
		I	II	Total	I	II	Total
0#/a	(1)	108	78	186	36	36	72
	(2)	102	63	165	30	28	58
				351			130
4#/a	(1)	78	90	168	45	42	87
	(2)	72	102	174	45	48	93
				332			180
7#/a	(1)	84	114	198	39	42	81
	(2)	93	92	185	75	54	129
				383			210
10#/a	(1)	105	117	222	57	51	108
	(2)	90	114	204	30	63	93
				426			201
13#/a	(1)	94	93	187	39	30	69
	(2)	72	108	180	27	42	69
				267			138

Remarks: 13#/a appears to have reduced rate of growth equal to weed competition of the check plots.

Outline Sansevieria 51-15
51-15a
51-15b

Boynton

1. Expt.: Chemical weed control in sansevieria

2. Location: O. R. Winchester Farm

3. Soil: Leon fine sand

4. Variety: Leaf cuttings of S. trifasciata planted in January 1951

5. Treatment: 23 July 51; CMU 80%; 100 gal. water/a

   a. Check

   b. 5#/a total, 4# active

   c. 10#/a total, 8# active

   d. 15#/a total, 12# active

6. Design: Random blocks, 4 replicates, 4 x 40 ft. plot

N	I	1/a	II	5/c	III	9/d	IV	13/d
		2/b		6/a		10/b		14/c
		3/c		7/b		11/a		15/b
S		4/d		8/d		12/c		16/a

7. Field trial 51-15a leaf cuttings
Treatment CMU (80%); 7 Aug. 51; 1/10 acre plots
Treatment applied to clean cultivated area
N (1) Unweeded check (2) 4#/a active

S (3) Weeded check (4) 2#/a (5) 6#/a

8. Field trial 51-15b whole plants
Treatment CMU (80%); 23 Aug. 51; 1/10 acre plots
Treatment applied to moderate growth of weeds
E (1) Unweeded check (2) 12#/a (active)

W (3) Weeded check (4) 8#/a (active)

Data Sheet 1 Sansevieria 51-15 Boynton

Treatment 23 July 51 CMU (80% Active Ingredient) DuPont Expt'l.
Observations 7 Aug. 51, 24 days after treatment

Oz. green wt. of weeds per 40 sq. ft. of plot

Treatment	I	II	III	IV	Total	% Control
Check	50	61	52	63	226	
4# (Active)	14	20	13	16	63	72
8#	2	1	1	6	9	96
12#	0	0	1	3	4	98
	65	82	67	88	302	

Source	DF	SS	V	F
Total	15	8,263		
Replicate	3	95	32	3.5
Treatment	3	8,085	2,695	299.1
Error	9	83	9	

REMARKS: Applied under fairly good conditions. Rain fell about six hours after treatment. Weed growth was moderate, about 3800#/A in control at time of observations. Area was innundated several times shortly after treatment. Rains intermittent about twice a week.

Weed control considered satisfactory in the 8 and 12#/A treatments.

In a clean cultivated plot adjacent to experiment, good control was obtained with the 4# rate. Slight regrowth of crab grass noted at time of observation.

In a very weedy plot adjacent to the area, a 12# rate gave only fair control of weeds. No injury to sansevieria noted at this date in any of the treatments.

Data Sheet 2 Sansevieria 51-15 Boynton

OBSERVATIONS: 51-15 4 Oct. 51

All rates clean with no observable difference between rates. No injury to sansevieria noted. Check growth of weeds about 10 inches high, competing somewhat with sansevieria.

OBSERVATIONS: 51-15a 4 Oct. 51

1. Dense growth on unweeded part
2. 5#/a (4% active) has only few scattered weeds. New growth coming in.
3. Weeded check required second weeding
4. 2½/a (2#/active) has considerable growth of weeds. Second application made
5. 7.5#/a (6#/active) very few weeds. No regrowth of weeds noted. No serious injury to sansevieria

OBSERVATIONS: 51-15b 4 Oct. 51

1. Unweeded check, weed growth about 18 inches high, serious competition to sansevieria
2. 15#/(12# active) considerable injury to sansevieria
3. Weeded check, second weeding necessary
4. 10# (8# active) considerable injury to sansevieria

Data Sheet 3, Sansevieria 51-15 Boynton

Observations: 8 Nov. 51, 4½ Months After Treatment, 95-100% Control of Weeds

51-15, Leaf Cuttings, Plants per 20 Foot of Row

CMU	I	II	III	IV	Total
0#/a	105	110	117	116	448
4#/a	139	157	121	157	574
8#/a	132	147	137	133	549
12#/a	154	148	126	136	564

Remarks: #/a CMU (Active) applied about 5 months after planting of leaf cuttings, but before plants emerged. Weed competition significantly reduced stand of check. No apparent injury to young plants.

51-15a, Leaf Cuttings, plants per 6.7 ft.

CMU	I	II	III	IV	V	Total
0#/a	38	44	39	35	28	184
2½#/a*	50	46	52	42	33	223
4#/a	37	46	41	38	39	201
6#/a	41	46	50	48	49	239

Remarks: #/a CMU (Active) applied to clean cultivated plots, check hand weeded. No significant difference of treatments. No apparent injury to sansevieria.

*Second application necessary 4 Oct. 51, 2 months after first.

51-15b, Whole plants, plants per meter

	Not Weeded		Hand Weeded		CMU 8#/a		CMU 12#/a	
	Tot.	Inj.	Tot.	Inj.	Tot.	Inj.	Tot.	Inj.
I	41	0	59	0	43	8	52	9
II	60	0	66	0	61	11	63	6
III	52	0	48	0	63	10	60	15
S	153	0	173	0	167	29	175	30
% In.		0		0		17.4		17.1

Remarks: Plants mostly recovered, injury slight.

Outline Sansevieria 51-17 Jupiter

1. Expt.: Chemical weed control (CMU)

2. Location: Westerveld Farm, 12 miles NW Jupiter

3. Soil: Light loam sand

4. Variety: *S. trifasciata*

5. Treatment: CMU, DuPont Expt'l. weedicide

   0. Check
   a. 2#/a CMU active ingredient in 100 gal. water
   b. 4#/a
   c. 7#/a
   d. 10#/a
   e. 14#/a
   f. 18#/a

6. Design: Random block, 4 replicates. Plot 7.5 x 200 ft., split for plants and cuttings

Data Sheet 1 Sansevieria 51-17 Jupiter

Treatment 6 Aug. 51, Oz. weeds per 12 sq. ft. area of plot 25 days after treatment

Treatment	I	II	III	IV	Total	% Weed Control
Check	23	35	18	28	104	
2# (Active)	18	21	13	19	71	32
4#	20	18	7	17	62	40
7#	6	13	17	9	45	56
10#	7	14	15	10	46	55
14#	6	5	2	3	16	85
18#	3	6	3	5	17	83
	83	112	75	91	561	

Source	DF	SS	V	F
Total	27	1863		
Replicate	3	109	56	2.1
Treatment	6	1442	240	14.1
Error	18	312	17	

REMARKS: Weed control at the 14 and 18# rates considered satisfactory. Low rates did not give good weed kill under conditions of experiment.

Treatment was applied under rather unfavorable conditions. There was a heavy growth of weeds, about 5900# green weight per acre. Water was standing in local areas before and during application, and rain fell within one hour after treatment was completed. Rains continued intermittently three to four times per week thereafter.

No injury to the sansevieria was noted at the time of observation.

Some regrowth of crab grass was noted in the 10 and 14# rate at this date.

Data Sheet 2 Sansevieria 51-17 Jupiter

Planted Feb. 1951. CMU treatment 12 July 51
Observations 8 Nov. 51, plants per 12 feet of row

#CMU (Active)	II	III	IV	Total	% Check
0#/a	33	32	38	103	
2#/a	32	35	35	102	99
4#/a	34	33	35	102	99
7#/a	34	32	36	102	99
10#/a	34	41	29	104	101
14#/a	28	37	35	110	107
18#/a	31	43	32	106	103

Remarks: No apparent injury to sansevieria. Weed control in 14 and 18# rates good five months after treatment. In this experiment 10# rate or lower was not effective for weed control. The low level of injury may be due to alkaline conditions of the soil or dilution by high rainfall.

~~E-03~~
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Outline Sansevieria 51-16a
16b
16c

Fort Lauderdale

1. Expt.: Chemical weed control

2. Location: Naval Air Station, Fort Lauderdale

3. Soil: Davie fine sand

4. Variety: _S. longiflora_, _S. guineensis_, _S. trifasciata_ and _S. Laurentii_

5. Treatment: 51-16a, 17 July 51
0, 1, 7, 10, 14# active CMU (100 gal./a water)

51-16b, 16 Aug. 51
4#/a 2,4-D overall applications

51-16c 11 Sept. 51
A. CMU 3#/a active ingredient
TCA 10#/a active ingredient

B. TCA 10#/a active ingredient
2,4-D 3#/a active ingredient

C. CMU 3#/a active ingredient
2,4-D 3#/a active ingredient

6. Design: 4 replications, plot size 9 x 18 and 9 x 6 ft., random block

Data Sheet 1 Sansevieria 51-16a Fort Lauderdale

Treatment CMU, 80% active ingredient, DuPont Expt'l Weedicide applied as spray in 100 gal. water per acre. 17 July 51
Observations, 7 Aug. 51, 23 days after treatment

Treatment	I		II		III		IV		Av.		Control	
	a	b	a	b	a	b	a	b	a	b	a	b
Check	5	5	5	5	5	5	5	5	5	5	0	0
1#/a (active)	5	5	5	4	5	5	5	5	5	5.8	0	14
7#/a	3	4	3	2	4	3	3	1	3.3	2.0	43	70
10#/a	4	2	2	1	3	2	3	2	3.0	1.8	50	74
14#/a	3	1	2	1	3	2	2	1	2.0	1.3	70	64

REMARKS: Applied under fair conditions. Rain shortly after application, but limited thereafter, about once a week. Moderate growth of weeds but mostly nut grass which appears to require a rather high rate of application for control. It appears that a higher rate of application is required on this type of soil, mixture of muck and sand, than on sand.

An area of para grass sprayed at 15# (active ingredient) showed a good kill. A rate of 10# was much less effective. An area clean cultivated but seriously infested with nut grass, did not give control at the 7# rate.

Some slight injury to the sansevieria was observed at the 14# rate.

1 equals 90% control of weeds
2 " 70% " " "
3 " 50% " " "
4 " 30% " " "
5 " 10% " " "

Data Sheet 2 Sansevieria 51-16b Fort Lauderdale

2,4-D applied overall 16 Aug. 51; observations 11 Sept. 51

CMU	14#/a	10	7	1	0
IV	2.0	2.0	2.5	2.5	4.0
III	1.5	2.0	2.0	2.5	2.5
II	2.5	2.0	2.5	5.0	4.0
I	1.5	2.5	2.0	2.5	3.0
	7.5	8.5	9.0	12.5	13.5
Av.	1.9	2.1	2.3	3.1	3.4
% Control	72	68	64	48	42

Ratings: 1 equals 90% control of weeds
2 " 70% " " "
3 " 50% " " "
4 " 30% " " "
5 " 10% " " "

REMARKS: No serious injury observed on sansevieria. Weeds not killed are broom sedge, nut grass and spurge. Good control of other weeds.

Data Sheet 3 Sansevieria 51-16c Fort Lauderdale

Applied 11 Sept. 51; observations 21 Sept. 51

	CMU	14#/a	10	7	1	0
A	1	0.5	2.0	2.0	1.5	1.0
TCA 10 #/a	5	1.5	1.5	2.5	3.0	3.0
CMU 3 #/a	9	0.5	1.0	1.5	2.0	1.5
	10	1.0	0.5	1.5	1.5	3.0
Total		3.5	5.0	7.5	8.0	8.5
B	2	1.0	0.5	1.5	2.0	2.0
TCA 10 #/a	4	1.5	1.0	2.5	1.5	2.5
2,4-D 3#/a	7	0.5	1.0	1.5	2.0	1.0
	12	1.0	0.5	1.0	1.0	1.0
Total		4.0	3.0	6.5	6.5	6.5
C	3	0.5	1.0	1.0	2.0	1.5
CMU 10 #/a	6	1.0	1.5	2.0	3.0	2.5
2,4-D 3#/a	8	0.5	1.5	2.5	2.5	3.0
	11	1.5	1.0	2.0	2.0	2.5
Total		3.5	5.0	7.5	9.5	9.5

CMU rates applied 17 July 51; 2,4-D applied 16 Aug. 51; treatments A, B, C, applied.

TCA treatments gave slight injury to *S. guineensis* and *S. longiflora* at this rate. Weed growth not controlled by CMU or 2,4-D were fairly well controlled by TCA.

Data Sheet 4 Sansevieria 51-16c Fort Lauderdale

Treatment applied 11 Sept. 51; observation 11 Oct. 51

	CMU	14#/a	10#/a	7#/a	1#/a	0
A	1	1.0	2.0	1.0	2.0	3.0
TCA 10#/a	5	1.0	1.5	2.5	3.0	2.0
CMU 3#/a	9	1.0	1.0	1.0	2.0	2.5
	10	1.0	2.0	1.0	1.5	1.5
Total		4.0	6.5	5.5	8.5	9.0
B	2	1.0	1.5	1.5	1.5	2.5
TCA 10#/a	4	1.0	1.5	2.0	2.5	2.0
2,4-D 3#/a	7	1.0	1.0	1.0	3.0	1.5
	12	1.5	1.5	1.5	1.0	4.0
Total		4.5	5.5	6.0	8.0	10.0
C	3	1.5	1.5	1.5	1.0	1.5
CMU 3#/a	6	1.0	1.0	1.5	2.0	3.5
2,4-D 3#/a	8	1.0	2.0	3.0	3.0	4.0
	11	1.0	2.0	1.5	2.0	4.0
Total		4.5	6.5	7.5	8.0	13.0

Outline Sansevieria 51-19 Belle Glade

1. Expt.: Weed control
2. Location: Everglades Experiment Station (Sec. 10)
3. Soil: Everglades peat
4. Variety: S. trifasciata
5. Treatment: 13 Sept. 51, applied in 100 gal. water acre
    a. 2,4-D NaSalt (80%) 2½#/a acid equivalent
    b. 2,4-D NaSalt (80%) 5#/a acid equivalent
    c. CMU (80% active) 5#/a active ingredient
    d. CMU (80% active) 10#/a active ingredient
    e. Treatment a plus c
    f. Treatment b plus d
6. Design: Random block, 18 x 18 ft. plot, three replicates
7. Field Plan

	I	II	III
1	a	f	c
2	b	a	e
3	c	d	f
4	d	c	b
5	e	b	d
6	f	e	a

Data Sheet 1 Sansevieria 51-19 Belle Glade

Treatment applied 13 Sept. 51, observations 15 Oct. 51

Treatment	I		II		III		Average Rating	
	x	y	x	y	x	y	y	y
2,4-D								
2½#/a	1	2	2	3	3	2	2.0	2.3
5#/a	1	4	1	3	1	3	1.0	3.3
CMU								
5#/a	3	1	2	1	3	1	2.6	1.0
10#/a	3	1	3	1	3	1	3.0	1.0
2,4-D plus CMU								
2½-5	2	1	1	2	1	2	1.3	1.6
5-10	1	3	2	3	1	2	1.3	2.3

REMARKS: Considerable injury to sansevieria noted with 2,4-D at 5# rate. CMU not very effective on broad leaf weeds at low rate but good kill of weeds by combination.

Data Sheet 2 Sansevieria 51-19 **Belle Glade**

Treatment Applied, 13 Sept. 51, Observation 16 Nov. 51

Treatment	I		II		III		Average Rating	
	x	y	x	y	x	y	x	y
2,4-D								
2½#/a	1.0	2.0	1.0	1.0	2.0	2.0	1.0	1.6
5#/a	1.0	3.0	1.0	4.0	1.0	3.0	1.0	3.1
CMU								
5#/a	3.0	1.0	2.0	1.0	3.0	1.0	2.7	1.0
10#/a	2.0	1.0	3.0	1.0	2.0	1.0	2.3	1.0
2,4-D & CMU								
2½ - 5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5 - 10	1.0	3.5	1.0	2.0	1.0	2.0	1.0	2.5

x weed control

1. Very good
2. Good
3. Fair
4. Poor
5. Very poor

y injury to sansevieria

1. None
2. Light
3. Moderate
4. Severe
5. Very severe

Summary Sheet Sansevieria 51-13, 15, 16, 17, 19

CMU Weed control, May-Nov. 51, *S. trifasciata*

Location and Soil Type	CMU #/a (Active)	Control Percent	Duration Months	Sansevieria Injury
		Post-emergence		
Indiantown	4	50	3-4	Nil
Light sand	8	60	4-5	Nil
(acid)	12	85	5 plus	Slight
		Pre-emergence		
	4	75	3-4	Nil
	7	90	4-5	Nil
	10	100	4-5 plus	Nil
	13	100	4-5 plus	Slight
		Post-emergence		
Jupiter	10	55	1-2	Nil
Light sand	14	88	3-4	Nil
(Neutral)	18	83	3-4	Nil
		Post-emergence		
Boynton	4	72	5 plus	Nil
Light sand	8	96	5 plus	Nil
(acid)	12	98	5 plus	Slight
		Pre-emergence		
	2½	90	2-3	Nil
	4	90 plus	5 plus	Nil
	6	90 plus	5 plus	Nil
Ft. Lauderdale	10	Fair	3-4	Nil
Mucky sand	14	Fair	4 plus	Slight
Belle Glade	5	Fair	2-3	Nil
Peat	10	Fair	3 plus	Nil

Summary of field planting study 51-14, 6, 7, 9

Whole plants transplanted to the field were not found to have any great advantage over leaf cuttings. Rows spaced 30 or 42 inches apart were not satisfactory for planting of cuttings. The closest possible spacing of rows, 12 to 18 inches, should be used.

About 2000# of leaf material, 6 to 8 inches in length, are required to plant at a rate of 80,000 cuttings per acre and proportionately less for lower rates.

Leaf material should be planted shortly after cutting, but this material may be held for as much as six weeks before planting without serious loss, providing disease such as soft rot does not destroy the cuttings.

Cuttings of S. trifasciata may be planted throughout the season if properly cared for to control weeds, provide adequate moisture and drainage and provide adequate fertility. The number of new plants from February, May and July tended to be approximately the same, but cuttings planted in February produced proportionately larger plants than later plantings.

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Outline Sansevieria 51-14 Indiantown

1. Expt.: Field planting of whole plants, 4 June 51

2. Location: Indiantown, Troup place

3. Soil: Light sandy loam

4. Variety: *S. trifasciata* whole plants

5. Treatment: Transplanted sansevieria plants from Boynton nursery with standard celery transplanter in rows 30 inches apart with plants spaced 8 inches in the row, about 25,000 plants per acre. Area sprayed with 8#/a CMU (active) July 51, March 52 and October 52.

6. Abstract of Results: Planting with celery planter proved very satisfactory and gave a good set of plants.

CMU at this rate of application did not show any injurious effects on the sansevieria. CMU applications gave good control of grass and broad leaf weeds for about 6 months if applied to relatively clean fields with adequate available moisture. Lower rates of CMU might be used, but this would require more frequent application.

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Outline Sansevieria 51-6 Jupiter

1. Expt.: Leaf cuttings - plants - spacing

2. Location: Westervelt place

3. Soil: Light sand

4. Treatment: Leaf cuttings and plants spaced a) 18, b) 30, c) 42 in.

5. Variety: S. trifasciata, 2½ year stand

6. Design: Random block, 4 replicates, split plot, plants vs. cuttings sub-plot 50 x 21 ft.

7. Abstract of Results: About 2050# green weight of leaf cuttings 6 to 8 inches long were required to plant an acre, spaced 4 inches apart in the row, and rows 18 inches apart (87,020 cuttings per acre). One acre of established stand for the year regrowth would plant about 25 acres at this rate. About one half acre nursery per year of growth planted at a rate of 40,000 cuttings per acre would be required to plant an acre of plants at this rate.

One year after planting there was a 14.6% increase of plants from whole plants over leaf cuttings and the plants from whole plants were also somewhat larger. This small difference does not appear to justify the cost of maintaining a nursery and transplanting to the field.

Data Sheet 1 Sansevieria 51-6 Jupiter

Number and pounds green weight of leaf cuttings required to plant an acre for 18, 30 and 42 inch rows and 4, 8 and 16 inch spacing within the row.

	Spacing Between Rows		
	18"	30"	42"
Four inch spacing within row			
No./a	87,120	52,272	30,492
#/A	2,030	1,335	875
Eight inch spacing within row			
No./a	43,560	26,136	15,246
#/A	1,015	778	438
Sixteen inch spacing within row			
No./a	21,780	13,568	7,623
#/A	507	389	229

Data Sheet 2 Sansevieria 51-6 Jupiter

Observations 21 Feb. 52, approx. 1 yr. after planting. Number of plants per 50 ft. row planted at rate of 3 units per ft.

Cuttings

Spacing	18"	30"	42"	Total
I	127	94	133	354
II	126	101	117	344
III	94	133	110	337
IV	133	85	105	323
Sum	480	413	465	1358
Plants				
I	134	141	132	407
II	137	136	116	389
III	116	131	152	399
IV	117	121	158	396
Sum	504	529	558	1591
Total	984	942	1023	

Increase of plants over cuttings is 14.6%

Analysis of Variance

Source	DF	SS	V	F
Total	23	7,423		
Whole Plot	11	2,513		
Rep.	3	153	51	NS
Spacings	2	211	105	NS
Error a	6	2,149	358	
Materials	1	2,062	2,062	9.91*
M x S	2	972	486	2.33
Error b	9	1,876	208	

*Significant at 5% level.

Outline Sansevieria 51-7 Boynton

1. Expt.: Effect of age on propagation of leaf cuttings

2. Location: Oscar Winchester Farm

3. Soil: Leon fine sand

4. Variety: S. trifasciata

5. Treatment: a. Leaf tips from 8 month plants, freshly cut

   b. Leaves from 3 year stand, freshly cut

   c. Leaves from 3 year stand, planted 6 weeks after cutting

6. Design: Random block, 3 replicates, row plot of 50 ft., cuttings spaced 3 - 4 inches, rows spaced 20 inches

7. Abstract of Results: Differences between treatments were not apparent three months after planting but were significant three months later. The most rapid proliferation of plants was obtained from the 8 month old plants. Those allowed to stand 6 weeks before planting did not produce plants as rapidly as those planted shortly after cutting.

Data Sheet 1 Sansevieria 51-7 Boynton, Fla.

Planted 30 May 51, observations 13 July 51, 3 months after planting

Number of live cuttings per 100 planted

Planting Stock	I	II	III	Total	% Loss
8 Month old plants Leaves fresh cut	98	95	100	293	2.3
3 Year old plants Leaves fresh cut	99	100	92	291	3.0
3 Year old plants Leaves cut 6 weeks	88	88	92	268	10.7

Analysis of Variance

Source	DF	SS	V	F
Total	8	190		
Rep.	2	1	0.5	
Treat.	2	129	64	4.3
Error	4	60	15	

Remarks: Not significant, but there is an indication of some loss in vitality by holding the cuttings for 6 weeks before planting.

Data Sheet 2 Sansevieria 51-7 Boynton

Planted 30 Mar. 51, observations 4 Oct. 51, 6 months after planting

Number of Plants per 12 Ft. of Row

Planting Stock	New Plants per 100 Cuttings I	II	III	Total	Net Increase
8 Months old plants Leaves freshly cut	100	85	107	292	.97
3 Year old plants Leaves freshly cut	85	88	76	249	.83
3 Year old plants Leaves cut 6 weeks	56	56	74	186	.62

Analysis of Variance

Source	DF	SS	V	F
Total	8	2,442		
Replicate	2	132	66	
Treatments	2	1,895	947	9.1*
Error	4	415	104	

*Significant

Outline Sansevieria 51-9 Boynton

1. Expt.: Date of planting of leaf cuttings
2. Location: Winchester farm
3. Soil: Leon fine sand
4. Treatment: Feb., May and July planting
5. Design: Field plots, 40 x 200 ft.
6. Abstract of Results: 30 Dec. 51 observations

Planting Date	Feb.	May	July
Height of plants	9	7	5 inches
Increase/cutting	2.5	2.7	2.8
Increase/ month	0.23	0.38	0.45

Plots were fertilized with 1000#/a of 12-8-8 and irrigated during dry periods. Early season plantings tended to develop larger and taller plants, but the net increase in number of plants at the end of the year was approximately the same for these dates of planting. Rows spaced 12 inches apart were approximately covered over at the end of the year. Rows spaced 20 inches were not covered between rows until the second year.